

AMERICAN RAILROAD JOURNAL, AND ADVOCATE OF INTERNAL IMPROVEMENTS.

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CONTENTS :

Railroad Map; Railroad Notices, &c.....	page 513
Mad River and Lake Erie Railroad; Report on the Survey of a Route for the Proposed Susquehanna and Delaware Railroad.....	514
Report of the Route of a Railroad from the Susquehanna and Delaware Railroad to the State Line near the Great Bend of the Susquehanna; Portsmouth and Roanoke Railroad.....	516
Railroads in Florida; do. in Canada; Port Kent and Keeseville Railroad; Railroads; Safety Apparatus for Steam Boilers (with an engraving).....	517
Mount Auburn Cemetery (with an engraving).....	518
Gearing Chain (with an engraving).....	519
Hennekey's Gauge for Standing Casks (with engravings); Family Steamer.....	520
Hydraulic Dry Dock (with engravings); Incombustible Wash and Stucco White Wash; Process for Silvering Iron; Water Spout; &c.....	521
Literary Notices.....	522
Foreign Intelligence.....	524
Summary.....	525
Poetry; Advertisements.....	527
Meteorological Record; Marriages and Deaths, &c.....	528

AMERICAN RAILROAD JOURNAL, &c.

NEW-YORK, AUGUST 17, 1833.

TO CORRESPONDENTS.—The communication of V. D. G. "on the construction of curves for arches," and of Mr. Sullivan, "in further reply to Mercator," are received, and will appear in our next. We are also indebted to J. M. Fessenden, Esq. for his late report upon the Boston and Worcester Railroad, and to an unknown friend for a late and interesting account of the South Carolina Railroad, both of which will receive an early notice.

In our last, we referred to the contemplated railroad through New-Jersey and Pennsylvania to the Great Bend of the Susquehanna river, near Binghampton, in the state of New-York, and we are now enabled to give the reports of the engineers who surveyed that part of the route in Pennsylvania, between the Water Gap on the Delaware, and Pittston on the Susquehanna, and one of the routes between Lackawanna Creek, near the centre of Blakely township, in Luzerne county, and the Great Bend of the Susquehanna. These reports show a more favorable route than we had anticipated. We shall refer to the subject again soon, and hope to be able to give some account of the line in New-Jersey, between Elizabethtown and Belvidere, and to the Water Gap.

RAILROAD MAP; OR, MAP OF RAILROADS.—We have often felt the want of a map upon

which we could find delineated the route, connection, and intersection, of the various and numerous Railroads now constructing, and in contemplation, in the United States; but without any expectation of, at present, being relieved from the difficulty. We are, however, gratified to learn that a friend of ours, who has been much engaged in Railroad surveys and explorations, is now engaged and far advanced towards the completion of a map of that section of the United States lying north of the Potomac and east of Lake Erie, upon which he intends to delineate all the Railroads and Canals of which he has been able to obtain any account. There are several, however, of which he has been unable to obtain either a report or a map, and of course cannot rely upon the correctness of his accounts of them. We, therefore, once more ask of those of our friends who may have surplus copies of Railroad Reports, and especially those having maps attached to them, and of recent date, to oblige us with one—we promise to put them to good use, and hope to be able to return the favor in good time. It is a subject of no small importance at this time, when so much is said about Railroads, that there should be a map, showing the route, connection, and relative position of the different roads. Such a map will forcibly demonstrate the immense advantages of Railroads, but more especially of long and continuous lines of Railroads.

The following question has been submitted to us for publication, with a view of obtaining an expression of opinion upon the subject. We do not recollect to have seen any account of experiments having been made with a view of deciding that question, and are, therefore, the more desirous of eliciting information relative to it. Our friends, who may have made or witnessed experiments of the kind, or who can give the desired information, will greatly oblige us by communicating the facts for publication.

When the face of the country will admit of a location for a railroad, either for stationary or locomotive power, with the same expense of construction, how many feet per mile will a locomotive engine ascend, and be equal to the expense of stationary power, for the transportation of freight, allowing the freight equal both ways?

SHORT AND EASY SENTENCES.—We like brevity—especially such as the following—which we most feelingly recommend to the thousands who do not take the Journal—it does us good to read them—but to the letters. The first reads as follows:

"To the Editor of the Railroad Journal :

"Sir,—I want your Journal. Enclosed I send you, in advance, one year's subscription, and am your friend,

The other comes under somewhat different circumstances, but is none the less acceptable. It reads as follows :

"To the Editor of the Railroad Journal :

"Sir,—I have been a subscriber to your Journal since its commencement. I paid the first year in advance, and have never regretted it; but circumstances have prevented me from remitting, at an earlier date, for the present year. I therefore now send you \$5, which you will place to my credit, and believe me still your friend,

"—, August 1, 1833."

We consider the foregoing as well worthy the attention of those who are not subscribers, or, being subscribers, have been too busy to remit, for the current year, for the Journal.

PARLEY'S MAGAZINE.—We have received the first part, consisting of seven numbers, of Parley's Magazine, done up in paper cover, by Messrs. Lilly, Wait, & Co., Boston. This work is particularly designed for children, and we know of no other so well calculated to give them a relish for reading. It is embellished with numerous engravings, with a description of each, which always affords instruction as well as amusement. Parley's Magazine is published every other Saturday, in a convenient form for use, with 16 pages to each number, at one dollar a year.

IMPORTANT RAILROAD IMPROVEMENT.—The Philadelphia Franklin Institute having offered a premium of \$250 for the discovery of some mode to protect passengers and property from the sparks emitted from the Railroad Locomotives, we understand that Mr. Young, a skilful mechanic of Norfolk, Va., has invented a machine which entirely remedies the evil, the construction of which is simple and cheap,

MAD RIVER RAILROAD.—The annexed article from the *Western Pioneer*, printed at Springfield, Ohio, indicates a movement amongst those who are interested in this important link in the projected improvements in that growing state. It may truly be considered as one of the most important of the numerous contemplated railroads in Ohio. It will pass through one of the most fertile sections of that state, and open a direct, easy, and cheap mode of travel and transportation, by which the value of property, contiguous to it, say within ten miles on each side, will be increased, when the road is ready for use—more than twice the cost of the railroad. The thousands of acres, at present, of uncultivated land, will soon be made to contribute to the already immense business of our canals and our contemplated railroads. The forest will be made to blossom as the rose; towns and villages will spring up with their numerous dwellings and beautiful public edifices, where now is only to be found the lofty forest trees of a thousand years' growth, amidst which reside a few lingering remnants of those numerous and warlike tribes of red men, who were, but a few years since, masters of the boundless west.

The natural make of the country is highly favorable to the construction of a railroad; which may be made at a very cheap rate, and used either with horse, or locomotive power, as may best suit the business and wants of the country.

Should the commissioners decide to open their books in this city, they will find, we trust, that the measure is duly appreciated by those who have the means of increasing the business and prosperity of this city, by securing to it the trade of the thousands of square miles of the most fertile country in the world, west and southwest of Lake Erie. It is an object well worth the attention even of the first commercial city of the new world; but, if secured at all, it must be done by immediate and strenuous efforts, as New-York has two rivals, of no small consideration; and, if they do not count a population as numerous, they can at least boast of their enterprise, and the progress they have already made in their works towards the grand object for which we are all aiming, *the trade of the West,—the increase of which will, in twenty years, be equal to the present entire trade of the whole United States, and afford constant employment to all the canals and railroads which can be made in the mean time, to connect it with the sea-board.*

MAD RIVER AND LAKE ERIE RAILROAD.—We understand that a general meeting of the commissioners of the Mad River and Lake Erie Railroad has been called, and is to take place on Wednesday next, 31st. inst. at this place. We are much pleased to see that some interest is beginning to be felt on this important subject. The interests of a large body of our citizens, inhabiting a tract of country stretching from Dayton to the Lake, unrivalled for the fertility of its soil, capable of supporting a dense population, and which needs only an outlet for its produce to render it one of the best portions of the State, are deeply involved in the measures that may be adopted at this meeting.

It is understood that an estimate of the cost of the road, together with such other information as will enable the Commissioners to make arrangements for opening the books for subscriptions, without delay, will be laid before the Board, by the U. S. Engineers, by whom the survey has been made. These gentlemen have been busily engaged in making the necessary

surveys during the present season, and we understand that their opinion of the cheapness and excellence of the route is in the highest degree favorable. The grade of the road, we are informed, need in no case exceed 50 feet in the mile, and will reach that only in a few instances, and for short distances. The radius of curvature will not be less than 5000 feet, and in some cases will be more than four miles. The proportion of curves to straight lines is very small.

Upon the whole, from all the information we can gain upon the subject, we believe that no route has been examined in the United States presenting anything like as many facilities for the cheap and easy construction of a work of this description. In no instance that we ever heard of, has a railroad been located 150 miles in length, requiring no change of the power employed in transportation upon it. But on the road in question, no such change will be necessary; a locomotive engine, with its train of cars, can traverse its whole distance with ease, as there is not an inclined plane upon the route rendering the intervention of stationary power necessary.

A slight inspection of the map of the United States will be sufficient to satisfy any one of the importance of this route, as a link in the chain of communication from Albany to the Ohio River; indeed, from Buffalo to Dayton, via Sandusky City, the route is as direct as could be desired. Its importance to the commercial interests of the State of New-York is self-evident. It will be the only work that can at all prevent the trade of this country, especially that of Cincinnati, from being diverted to Baltimore and Philadelphia, when that great work, the Baltimore and Ohio Railroad, shall be finished to the Ohio. The facility with which our merchants could then travel over the mountains would be a great inducement for them to take that route, independent of the advantages of a choice of three markets. Should this road, however, be constructed, merchandise from New-York and Philadelphia could reach the Ohio in less time than by any other way, especially should a railroad be made from the Hudson to Lake Erie, as is contemplated. The Baltimoreans are fully aware of this, and are pushing on their great enterprise with all the energy of which they are capable. It is to New-York then that we must look for the means for the construction of this road, and we think we may look for it with confidence, as, without taking into consideration the great advantages to be reaped by her, especially from its construction, no doubt can be entertained that the stock will pay a handsome interest, considered merely in the light of an individual investment.

We suppose the course of the Commissioners at the coming meeting will be to despatch agents to the eastern cities to open the books and obtain subscriptions to the stock, as soon as may be. Should suitable men be obtained for this purpose, not the slightest difficulty, we apprehend, will occur in raising the requisite sum. No time ought to be lost, if such a course be adopted. Railroad stock is in good odor now, and there is a "tide" in railroad, and all other stocks, as well as "in the affairs of man." Let intelligent and respectable men be sent immediately to Albany, New-York, Buffalo and Rochester, to lay the claims of this great work properly before the capitalists there. In the selection of these agents, if men could be found personally known to these capitalists, so much the better. If men of respectability, their representations will command respect and credence.

We have thrown these remarks hastily together, to call the attention of our readers to this subject. It is one in which all are deeply interested, and which is intimately connected with the prosperity of the whole of that part of the State through which the road will pass. Should any farther information come into our possession after the meeting of the Board of Commissioners, our friends may depend upon receiving it at as early a day as possible.

In conclusion, we exhort all friends of the enterprise to join heart and hand, and do what they can to forward it to its completion. Let us put our own shoulder to the wheel, and then call on Hercules, and we may be sure of success.

A Report of the Chief Engineer on the Survey of a Route for the proposed Susquehanna and Delaware Railroad, from Pittston, on the Susquehanna, to the Delaware River, at the Water Gap.

To David Scott, and others, Commissioners, &c.

GENTLEMEN,—In compliance with a request from your Board, communicated to me in the early part of the past summer, I examined the country between the Susquehanna at Pittston, at the junction of the Lackawanna and the Delaware River, at its pass through the Blue Ridge, called the Delaware Water Gap; and also directed the execution of such surveys as were deemed necessary to determine the feasibility and probable expense, of constructing a Railroad between those points, by which it appears that the scheme is not only practicable, but that the object may be effected without encountering any inordinary difficulties, and at a comparatively reasonable expense.

Time and circumstances permitted the survey of but one route, in which the survey and levels were minutely taken, and the surrounding country as much explored as the nature of the case would permit, for which I am bound to acknowledge my obligation to the intelligence and assiduity of R. J. Germain, Esq., Civil Engineer, assisted by Messrs. Provoost and party.

The surveyed route being that which forms the basis of the estimate, will be the subject of the following remarks.

It commences at the junction of the Lackawanna with the Susquehanna River at Pittston, and runs from thence up the Lackawanna Valley to the mouth of Roaring Brook, thence up the valley of that stream to Lake Henry, a tributary of Roaring Brook, and from thence, crossing the head waters of Lehigh upon the table lands which form the dividing ridge between the Susquehanna and Delaware Rivers to the head waters of Anatomak or Broadhead's Creek, passing down the Pocono, one of its tributaries, through Stroudsburg, thence down the main stream, approaching the Delaware in front of Detottsburgh at the head of the Water Gap.

The elevation of the summit above the Susquehanna and Delaware Rivers respectively, is 1366 feet and 1599 feet, and the distance about 70 miles. This we divide into two, the Eastern and Western Division, which for the sake of perspicuity is divided into sections corresponding with the different grades to which the line is best adapted, as suggested by the various features of the ground.

It is, however, worthy of remark, that on either side of the summit through the valleys of Roaring Brook and Broadhead's Creek and its tributaries, the location will be upon a transverse slope, where any grade may be sustained that the circumstances of the case may require, hence, such grade was assumed in the survey as would admit of the advantageous use of locomotive engines. The maximum angle of ascent on the Western Division in the direction of the greatest trade, being 26 feet per mile, that on the Eastern Division, in the opposite direction, 40 feet per mile, which is not objectionable, in as much as the power necessary to transact the regular business of the Western Division, would perform the return business up a much steeper grade.

In the arrangement of the different grades for the application of locomotive, mechanical, or animal power, 666.5 feet of elevation is overcome on the Western Division, and 774 feet on the Eastern Division, leaving to be surmounted, by inclined planes requiring stationary power, 699.5 feet on the Western, and 855 feet on the Eastern Division, for which, as indicated by the survey, six inclined planes will be necessary, three upon each division. To those on the

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Western Division the waters of Roaring Brook may be introduced as the moving power.

In descending from the summit eastward into the Valley of Pocono, the line may be much improved and shortened by dividing inclined planes No. 1 and 2 into three planes, in such manner that neither shall overcome an elevation exceeding 250 feet, nor occupy a distance of more than half a mile; the line in consequence will be more direct—the inclined planes being reduced—better adapted to a great trade, and their location such, that the head waters of Pocono and Broadhead's Creek may be introduced at their summits as the propelling power. With this arrangement there will be seven inclined planes upon the whole route, to all of which water may be introduced in quantities sufficient to equal the greatest trade that can ever be anticipated, and may be used as a substitute for steam power, either in propelling machinery or as a preponderating power upon a self-acting plane.

In addition to the improvements suggested, there is no doubt that upon a more thorough examination many more will suggest themselves, whereby the line may be much improved, and distance diminished, without increasing expense.

Suitable materials for the execution of all mechanical constructions are abundant and convenient; in short, in computing the estimate I have had particular reference to the copious field notes and observations taken upon the ground, and, while on the one hand I have intended not to swell the amount to an extravagant degree, so, on the other, I have endeavored to make it fully adequate to the construction of the work, in a permanent manner.

The line generally is favorable in regard to curves, none very abrupt occurring, consequently no extra expense will be required to avoid them.

The formation of the road-bed should be calculated for a double track, in as much as that from its location it cannot be long after the first is completed before a second will be required, and should the grading be omitted until such necessity is experienced, the additional expense of widening the grade beyond what it would have been in the first instance, would be very great. Not so with the superstructure; the effect is different, and good policy would dictate the laying down first a single track, and make its advantages available in the transportation of materials for the second. An advantage, too, to be derived in grading in the first instance for a double track is, that by the time the second is required, the road-bed becomes settled and prepared for the reception of permanent materials; accordingly the following estimate of cost for forming the road-bed is with a view to a double track.

The Eastern Division includes all that part of the line between the main branch of the Lehigh River and the eastern termination upon the Delaware, and embraces the following grades:

No. of Grade.	Remarks.	Length of each grade in miles.	Descent in feet per mile.	Descent of each grade in feet.	Expense of forming the road bed of each grade
1.	From Lehigh River Eastward	11.	Level		\$51416 75
2.	Commencement of eastern slope	4.	22.5	90.	13408 24
3.	Grouse Plain do.	2.30	Level		21406 66
4.	Descending side of Pocono Mountain	4.98	40.	199.	24880 40
5.	Inclined Plane No. 1	0.62		350.	943 00
6.	Inclined Plane No. 2, including short level between planes	0.75		355.	18641 40
7.	Along Pocono Valley	7.	40.	280.	21083 48
8.	Inclined Plane No. 3	0.34		150.	675 00
9.	Passes Stroudsburg and Anatomak Mills	3.	35.	105.	7690 03
10.	Passing Industry Mills	2.80	25.	70.	8486 69
11.	Along the bank of the Delaware to Detonburgh	0.69	Level		2610 51
Total Eastern Division		37.48		1599.	171242 16

The Western Division extends from the River Lehigh to the western termination at Pittston.

No. of Grade.	Remarks.	Length of each grade in miles.	Descent in feet per mile.	Descent of each grade in feet.	Expense of forming the road bed of each grade
1.	From Lehigh to Western Slope	2.68	Level		\$15999 86
2.	Descends the Valley of Roaring Brook	7.50	26.	195.	20338 75
3.	Inclined Plane No. 1	0.68		234.5	2425 00
4.	Indications of Coal, Roaring Brook Deep Hollow	8.50	26.	221.	26080 00
5.	Inclined Plane No. 2, end of Moosick Mountain	0.60		240.	3405 00
6.	Ditto Ditto	2.85	26.	74.1	14220 20
7.	Inclined Plane No. 3, A. Slocum's Mills	0.75		225.	3895 00
8.	Down Lackawanna to Pittston	9.54	18.5	176.4	27611 33
Total Western Division		33.10		1366.	\$113975 14
Sum for Eastern and Western Divisions		70.58		2965.	\$285217 30
Add for engineering and unforeseen contingencies 10 per cent.					28521 73
Aggregate cost of graduation					\$313739 03
Average per mile					4445 15

Next to be considered is SUPERSTRUCTURE. And, although stone blocks may conveniently be obtained for the support of wooden string pieces, upon the plan adopted by the Mohawk and Hudson Railroad Company—or, stone sills superceding entirely the use of wood, upon the plan adopted by the Baltimore and Ohio Company on part of their road, suitable stone abounding in the valleys of Roaring Brook and Broadhead's Creek; yet, for various reasons, timber should be preferred in the first construction.

1st. As matter of economy, costing \$1500 to \$3000 less per mile than the other plans.

2d. Should any unevenness occur in the road-bed in the line of the ways, to which a new road is very susceptible, it is much more easily adjusted.

3d. By the time the road-bed is properly settled and business requires a second track, the various plans now in progress of construction will be tested and the selection may then be dictated by actual experience, and

4th. Great economy and advantage will be derived from this, in delivering upon the spot the materials for a permanent superstructure.

The route passing through a district of country abounding with timber of various kinds, and of excellent quality, such as white oak, yellow pine, red beech, hemlock, &c. all of which can be obtained at a very low rate, therefore the estimate is predicated upon a construction entirely of wood, with wrought iron rail plates $2\frac{1}{2}$ by $\frac{3}{4}$ inch thick, and one turnout per mile of 300 feet in length.

COST OF ONE MILE.	
10560 lineal feet Hemlock timber, at 3 cts.	\$330 00
14080 Do. Do. durable timber, 8 feet long for turns, at 3 cts.	440 00
2640 cubic feet durable timber for string pieces at $12\frac{1}{2}$ cts.	330 00
3520 Locust wedges, at 1 ct.	35 20
22 tons railplates, and transportation, \$65.	1430 00
$\frac{1}{2}$ ton spikes	100 00
600 lbs. connecting plates, 10 cts.	60 00
Labor putting down rails, drains, &c.	960 00
300 feet turnout	225 00
Cost of one mile superstructure	\$3910 20
Average cost of one mile graduation	4445 15
Average cost of railroad per mile	8355 35
Cost of 70.58 miles	\$589720 60

The location of the inclined planes being such as to render water available as the propelling

power, a question arises as to its most judicious application, whether in the operation of machinery, or as a preponderating power upon a self-acting inclined plane.

Self-acting planes are at present only used where the preponderance of the descending trade is sufficient to draw up the ascending, but I see no reason why they cannot be used with equal advantage in an ascending, or fluctuating trade, where water, in sufficient quantities, can, at all times be commanded at their head.

The plan recommended by M. Robinson, Esq., Civil Engineer to the managers of Danville and Pottsville Railroad Company;

I would therefore recommend for your consideration, as matter of economy, as well as preferable improvement, the construction of inclined planes upon the principle of those upon the east end of the Carbondale Railroad, with cars sustaining tanks or cisterns capable of containing water sufficient to preponderate any necessary ascending load, to be disgorged of their load at the foot, and return with the next ascending train.

Cost of seven inclined planes, at \$5000 - - - - - \$35000 00
Cost of grading and superstructure 589720 60

Aggregate cost of road \$624720 60

The capacity of a Railroad for the transaction of business, like that of a Canal, is measured by the facilities afforded in overcoming elevation.

Without troubling you with far-fetched theories upon this subject, I will refer you for example to the inclined planes upon the Carbondale Railroad; their ordinary progress upon the road, while making their transit, is at the rate of six miles per hour. From the favorable features of the ground on this route, for the location of the inclined planes, any angle of acclivity may be adopted that the nature of the case will justify; we shall assume therefore five degrees, as the angle best adapted to practical operations, hence, about half a mile will be the length of the planes on the Western Division, their acclivity being in the direction of the trade will regulate the business.

Assuming six miles per hour, according to the foregoing example, each transit will be performed in five minutes; allow for casual detentions $2\frac{1}{2}$ minutes, will make $7\frac{1}{2}$ minutes or 8 transits per hour. Assuming also 10 tons for the load, independent of the cars, is 80 tons per hour, and at 12 hours is 960 tons per day, and, making liberal allowance for all necessary delays, 250 days or 240,000 tons per year.

The experience upon railroads in this country does not yet furnish data whereby to calculate the expense of transportation; suppose then the tolls to be one cent per ton per mile, and the transportation one and a half cents per ton per mile, (which is about the expense on canals,) the amount for tolls on 70 miles is \$168,000, and for transportation, including tolls, \$420,000. This calculation may appear too large; suppose, then, that only half that business should offer, (which, from its location, there can be no doubt it shortly would,) the tolls would then be \$84,000, and transportation, including tolls, \$210,000.

A great inducement to this belief is, that more than 18 miles of the western end of this route is through a coal region, 6 miles of which is above inclined plane No. 2., along the valley of Roaring Brook, on the east side of Moosick Mountain, where indications of coal are of frequent occurrence.

The location of inclined plane No. 2, is at the south-western extremity of Moosick Mountain, from the head of which a line of road may be graded on the west side of the said mountain, declining 16 feet per mile, 13 miles to Carbondale, which, together with the extension of the Susquehanna, will make at least 27 miles, with which this vast coal field, embracing the valley of the Lackawanna, may be accommodated with a Railroad in a longitudinal direction, thus offering inducements to the individual

enterprise of this district, by affording a cheap and expeditious communication to market, which may defy competition from any other quarter.

From the eastern termination of this route the road may be extended along the bank of the Delaware to Easton, which the Company is authorized by their charter to do, from whence a choice of markets is offered to Philadelphia by the Pennsylvania Canal, or to New-York by the Morris Canal; or, for a more direct communication to New-York, the Delaware may be crossed at the Water Gap, and a tolerably direct route may be obtained to the summit of the Morris Canal, or, a line may be extended up the valley of Paulinskill, on or near the line of the late contemplated Sussex and Orange Canal to, the Hudson, at or near Newburgh: on neither of the above routes will any stationary power be required.

But as it may be important for the Company so to extend their work as to maintain an entire uninterrupted communication to market during the winter season, I beg leave further to state that a very direct route may be obtained on which a Railroad can be constructed without encountering any formidable difficulties from the Delaware Water Gap, approaching the Hudson River opposite the City of New-York. Respectfully submitted,

EPHRAIM BEACH, Civil Engineer.

December 31st, 1831.

Report of James Seymour, Esq., Engineer, upon the Route of a Railroad from the line of the Susquehanna and Delaware Railroad, at Lackawanna, to the State Line, near the Great Bend of the Susquehanna River.

To Samuel Calendar, Abel Gritman, Wm. Finn, and others:

GENTLEMEN,—The examinations and surveys, made agreeably to your instructions, in the months of December, 1832, and January, 1833, will be given in the following manner, and known as the 1st, 2d, and 3d routes, by beginning with the first examined.

It will not, I presume, be necessary for me to enter into long and tedious details of cursory examinations, (as time and circumstances would not admit of a minute examination,) and only determine the general feasibility and practicability of the routes. Definite locations alone will enable an exact estimate to be made of the amount of labor necessary to effect the construction of a Railway. I shall, therefore, confine myself to a statement of the most prominent points of the routes, or of those which will affect them, either favorably or otherwise.

FIRST ROUTE.—The point at which this route commences is near John Decker's saw-mill, at a convenient place for crossing the Lackawanna Creek, about the centre of Blakely, Luzerne county, Pennsylvania, and will be designated Lackawanna, in the following statement:

It is situated about 8 miles S. W. from Carbondale, and 14 miles N. E. from the junction of the Lackawanna Creek with the Susquehanna River. Its level above tide water is 865 feet—197 feet above Centreville—and 180 feet below Carbondale. It varies a little from a direct line between Cobb's Gap, which bounds the Lackawanna Creek, easterly, and Calendar's, westerly; the gap through which the line of survey passes, at an elevation of 550 feet above Lackawanna, by a cut on the summit which will not exceed 40,000 cubic yards—a distance of 3 miles requiring two stationary powers in reaching the summit, which is the head of a tributary stream putting into the Lackawanna Creek, near Samuel Calendar's, also the head of a tributary stream putting into the main branch of the Tunkhannock, known as one of the south branches. Thence by keeping on the southerly side of said creek, a distance of 5 miles, descending 360 feet, requiring one stationary power for 260 feet, and the remaining 100 on a grade of 20 feet per mile, which brings the level about 40 feet above the bed of the creek, at which point it will be necessary to cross to the opposite side. Thence on the northerly side, a distance of 5 miles, by

rising at the rate of 18 feet per mile, to near the level of the Bassett Pond. Thence on a level, passing Finn's Pond, (to a point from which it will be necessary to descend to the main branch of the Tunkhannock,) a distance of 3½ miles. Thence to the main branch of the Tunkhannock, near the mouth of Martin's Creek, a descent of 420 feet, a distance of 1 mile, requiring two stationary powers in getting down sufficiently low for crossing Tunkhannock, making the distance 17½ miles from Lackawanna to the mouth of Martin's Creek. The point where Martin's Creek empties into the main branch of the Tunkhannock, is about 12 miles N. E. from the Susquehanna River, (at the junction of the main branch with the Susquehanna.)

The line of survey from the Lackawanna to the mouth of Martin's Creek, will vary but a little from a direct line, as it may be seen by correct maps of the country that the stream itself, from its head, runs nearly in the same direction to the point proposed by this survey for crossing, and that the line diverging from the creek, soon after crossed by passing the Bassett and Finn Ponds to the mouth of Martin's Creek, as before described, is nearly direct. The face of the country is generally regular and uniform in the immediate vicinity of the line, (which is seldom found to be the case in this part of Pennsylvania.) Timber and stone are convenient throughout the line, and a railway may be constructed without encountering many difficulties, and comparatively at a small expense, as will be seen by the following estimate. Four viaducts will be necessary—one across the south branch of Tunkhannock—one across the Crooked and Mud Ponds' outlet, after their junction with each other—one across the main branch of Tunkhannock, and one across Martin's Creek, in order to follow up the west side of the last mentioned creek. The banks approach each other so nearly where the viaducts are required, that it will not require much labor, and consequently not much expense for construction.

Estimate.

17½ miles of Railway, exclusive of engines, machinery, and viaducts, will cost, at \$8,000 per mile, - - - \$138,000
5 Stationary Engines, at \$5,000 each, - - - 25,000
4 Viaducts, at \$1,000 each, - - - 4,000

\$167,000

See Leggit's Gap Report from the mouth of Martin's Creek to the State Line, 29½ miles, - - - 192,250

\$359,250

Extra for flange plates on curve lines, - - - 2,000

\$361,250

Add 10 per cent. for contingent expenses, - - - 36,125

Making in all, - - - \$397,375

It may be well here to remark, that the face of the country is such, that a different location may be made by a more expensive plan, and save 480 feet elevation and depression, together with one stationary power, by rising from Lackawanna 400 feet, to near Calendar's Summit, thence a cut for one quarter of a mile in distance, which will not exceed 50,000 yards; thence a tunnel for half a mile in distance, which will not exceed 8,000 yards; thence a cut on the opposite or westerly side of the summit, which shall not exceed 50,000 yards, which will carry the line through; thence to the point for crossing the south branch of Tunkhannock, about 5 miles distance, on a grade of 30 feet per mile to a point 100 feet above the bed of the creek. At this elevation above the creek, the banks approach each other so nearly, that they will not, in distance, exceed 10 chains apart, at the level of the proposed line, and approach each other at the bed of the creek; thence on a level to the point for descending to the main branch of the Tunkhannock, near the mouth of Martin's Creek, by crossing the outlet of Mud and Crooked Ponds, at the same point before

proposed—the banks situated similar to those last described—also by lowering the Bassett Pond 30 feet—it being 45 feet above Finn's—it will still leave the line of road 15 feet above the level of Finn's Pond; although this pond outlets into the south branch of the Tunkhannock, still it will not be necessary for the line of Railroad to rise from the level, 15 feet above said pond, in order to reach the height of ground between it and the main branch of the Tunkhannock, and remain upon fair ground for the construction of a Railway—thence to the main branch of the Tunkhannock, near the mouth of Martin's Creek.

With the last above proposed location, the line will be shortened one mile by crossing a ridge near Gorden White's, bounding the outlets of the Crooked and Mud Ponds west, which was necessary to go around, with the first proposed location, and may go around with the present, but the earth necessary to be removed will be wanted as embankment in crossing the outlet of said ponds, therefore it is preferable to take the course with the line, leaving the distance 16½ miles from Lackawanna to the mouth of Martin's Creek, and the location as follows: Rising from Lackawanna 400 feet, requiring two stationary powers, thence on a grade of 30 feet per mile, to the point for crossing the south branch of Tunkhannock, thence on a level to a point necessary to descend to the main branch of Tunkhannock, near the mouth of Martin's Creek, thence to the main branch of Tunkhannock, a descent of 390 feet, requiring two stationary powers in getting down sufficiently low for crossing, in order to intersect the line of survey made up the Martin Creek, and thence to the States' line, a distance of 29½ miles, on a grade of 20 feet per mile, making the whole distance from Lackawanna to the States' line, 46 miles.

Estimate.

First proposed location from Lackawanna to the mouth of Martin's creek - - - \$167,000

Deduct for one stationary power - - - \$5,000

Deduct 40,000 yards of excavation on summit, at 20 cents per yard - - - 8,000

Deduct one mile for railway saved - - - 8,000— 21,000

146,000

Add for the cuts at Calendar's summit, 100,000 yards at 20 cents - - - 20,000

Tunnel, 8,000 yards, at \$5 - - - 40,000

Crossing south branch of Tunkhannock, extra - - - 5,000

Crossing Mud and Crooked Ponds' outlet - - - 5,000

Draining the Bassett Pond - - - 20,000

236,000

See Leggit's Gap Report from the mouth of Martin's creek to the States' line - - - 192,250

428,250

Add 10 per cent. for contingent expenses - - - 44,625

Making in all - - - 472,875

PORTSMOUTH AND ROANOKE RAILROAD.—Desirous of saying something respecting the progress of this work from personal observation, we availed ourselves of the invitation of one of the Directors on Wednesday afternoon, and proceeded with him along the line of the road as far as it has been opened, a distance of about four miles from Portsmouth. But little remains to complete the raising and graduating the road to that distance, and the work, as far as it is done, is well done. The hands have lately been taken from the high land to complete the road through the Gum Swamp, while the dry weather continues. Through this swamp the distance is a little over a mile, and on each side a mile and a half has been nearly finished. To persons unacquainted with the nature of swamp

lands, it may appear a very laborious, tedious and expensive undertaking to get a solid foundation for a railroad, the idea over them prevailing that it is of the nature of a bog, and therefore requires to be piled in order to prevent it from settling or sinking; but this is a great mistake. It is true, that these lands are overflowed in wet seasons, and often remain so during the greater part of the year; but when the summer drought dries up the water, the earth soon becomes firm and tough, and the laborer finds it harder to excavate than the high land. Of course the great Dismal Swamp is an exception to this rule.

One of the greatest difficulties anticipated in this railroad, was that of the swamps which lie in its route, and which were supposed to require uncommon exertion and expense to render them passable; but it is a fact that the road can be made through them on a firmer foundation and at little if any more cost than that of the level high land.

It will be attempted, and it is confidently believed to be within the power of the company, to complete the whole line from Portsmouth to Suffolk, (sixteen miles,) by next Christmas. The operations at the upper end of the line have been prosecuted with much greater rapidity than at this: there, they have 150 hands employed—here, only half that number. Although as yet but little has been done, comparatively, (for the work has only been two or three months in progress,) there is enough to show to inspire confidence in the success of the undertaking, and in the judicious management of the Directors. Every advantage appears to be taken of circumstances: in crossing the head of Scott's Creek, we perceive the expense of piling for a foundation has been avoided, by building a culvert on a knoll of solid ground projecting into the marsh, and turning the drain through it; and temporary but substantial wooden bridges are thrown over the ravines, until the materials to build them of stone can be conveyed in the cars, which will expunge a very material item of expense. The level and almost unbroken face of the country, indeed, is peculiarly favorable to the rapid progress of the work, and to its execution upon the lowest possible terms; and its friends need entertain no fears about its success.—[Norfolk Herald.]

RAILROAD IN FLORIDA.—The Floridian of the 27th ultimo states, that a subscription has been started in Tallahassee and more than nine hundred Shares, at twenty dollars each, have already been taken, for the purpose of establishing a Railroad from Tallahassee, to some point on the St. Marks or Waukulla River. Three-fourths of the subscribers have said they would double the amount of their subscriptions, if necessary. Application will be made to the legislative council for a charter, at its next session, and to Congress for the necessary appropriation of land, &c. &c. Is it not time for Georgians to strain every nerve, if they do not wish to see one of the Old Thirteen outstripped in enterprise by the citizens of a Territory but lately acknowledged as a part of our domain.

PORT KENT AND KEESEVILLE RAILROAD.—We learn that a survey and level of the contemplated route or routes has been made by J. N. McCumber, Esq., under the superintendence of Messrs. Watson and Keese; and that the distance by one route is 4½ miles, with an average rise of forty feet to the mile: that by the high bridge the distance is 5½ miles, making an average rise of thirty-one feet to a mile—without any obstruction by hills, and, as the surveyor reports, "Requiring little or no excavation the whole distance; and running through a sandy surface, and passing on the borders of an extensive cedar forest; and inexhaustible stone quarries lying above the surface, of the first quality."—[Argus.]

RAILROAD IN CANADA.—A charter has been granted by the Legislature of Lower Canada, for making a railroad from Montreal to St. John, on Lake Champlain.

RAILROADS.—The number and extent of new lines of railroad now in progress and in contemplation have caused a considerable rise in the price of iron. In addition to those now forming in England, very large orders have arrived from America. In one instance, near Wolverhampton, we have heard of an order to the amount of several thousand pounds for cast iron chairs alone.

A magnificent undertaking is in contemplation by the French government—the formation of a grand line of railway from Paris to Rouen, Havre, Lyons, and Marseilles. The government, with this intent, have already demanded a vote of £20,000 for the preliminary survey. This is part of a vote of £4,000,000 sterling just obtained for the completion of public edifices, monuments, canals, and roads.

The heavy work of that great undertaking, the Newcastle and Carlisle Railway, on the line from Carlisle eastward, for about ten miles, is now in a state of considerable forwardness. The tremendous excavation at the Cawran hills is about half finished, and some idea may now be formed of the grand appearance which this portion of the road will present. The length of the cut is about 800 yards, the depth in many places at least 40, and consisting of 1,000,000 cubic yards of earth, sand, and stone.

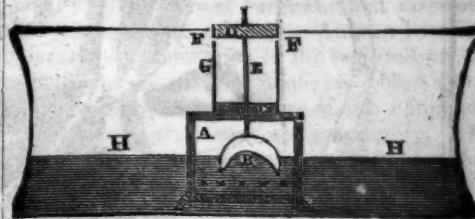
Another heavy piece of work, three miles nearer Carlisle than the Cawran hills, is the viaduct of five arches, over Corbyneck Valley; it is now in a forward state, and is a handsome structure. Within 200 or 300 yards of this, is the stupendous viaduct over the river Eden, and the adjoining glen at Wetherall, to connect the lofty rocks on each side. This is a magnificent object: its entire length is 600 feet, and breadth 20 feet within the parapets; it has five arches of 80 feet span each. From Wetherall to within a mile and a half of Carlisle, the work is also in a state of forwardness. Nearer to Carlisle nothing of any consequence has been set about, with the exception of the bridge over the Petterel, near Maine's cotton works, which is now completed.—[London Repertory of Arts for July.]

Safety Apparatus for Steam Boilers. By F. H. [Communicated for the Mechanics' Magazine.]

Conceiving that there cannot be any invention more requisite than that of a safety apparatus for preventing the explosion of steam boilers, induced me most willingly to accept an invitation through a friend, to witness an experiment on a machine invented by Mr. Kennedy, of Fourth street, for that purpose, which, although tried on a small scale, evinced a capacity to embrace in the fullest sense a power to avert the awful calamity of the bursting of steam boilers. It is, on all hands, an admitted fact, that the cause of bursting or collapsing arises from a deficiency of water in the boiler; to ascertain the quantity, gauge cocks are used, which, at the most important time, are known to be uncertain, for, when the water is low, a quantity of it as condensed steam may yet remain in the cock, which, on opening, will cause a jet of water, that in too many cases satisfies the engineer. To obviate this, and to place the apparatus beyond the control of any person after it is fixed in the boiler, to simplify its formation and actions, and do away with the gauge cock, is evidently the object of the inventor, to which points he has certainly arrived, and which are fully demonstrable by the annexed engraving and reference.

Mr. Kennedy, agreeably to request, having communicated his plan to the Secretary of the United States Treasury, conceives that he has done his duty, and awaits the result. I have a different opinion, and, having ob-

tained his permission, I wish through your useful magazine to lay a description of it before the public, with a desire to form a company which would put the apparatus into full operation, and probably save the lives and property of thousands.



This shows the interior of the boiler, also of the apparatus. A is a box containing the float. B the concave float, (concave at bottom and concave at top). C, soap-stone. D, a wadded stopper, connected by a rod, E, with the float, which, when lowered by the sinking of the float below the holes F, in the upper part of the tube, admits the steam to rush out, which will show the want of water in the boiler, agreeably to the adjustment between the float and stopper. G is a tube attached to the box A, and passes through the upper part of the boiler, in which the stopper acts, and at the top of which are four holes exactly opposite each other, through which the steam rushes when the water becomes low in the boiler.

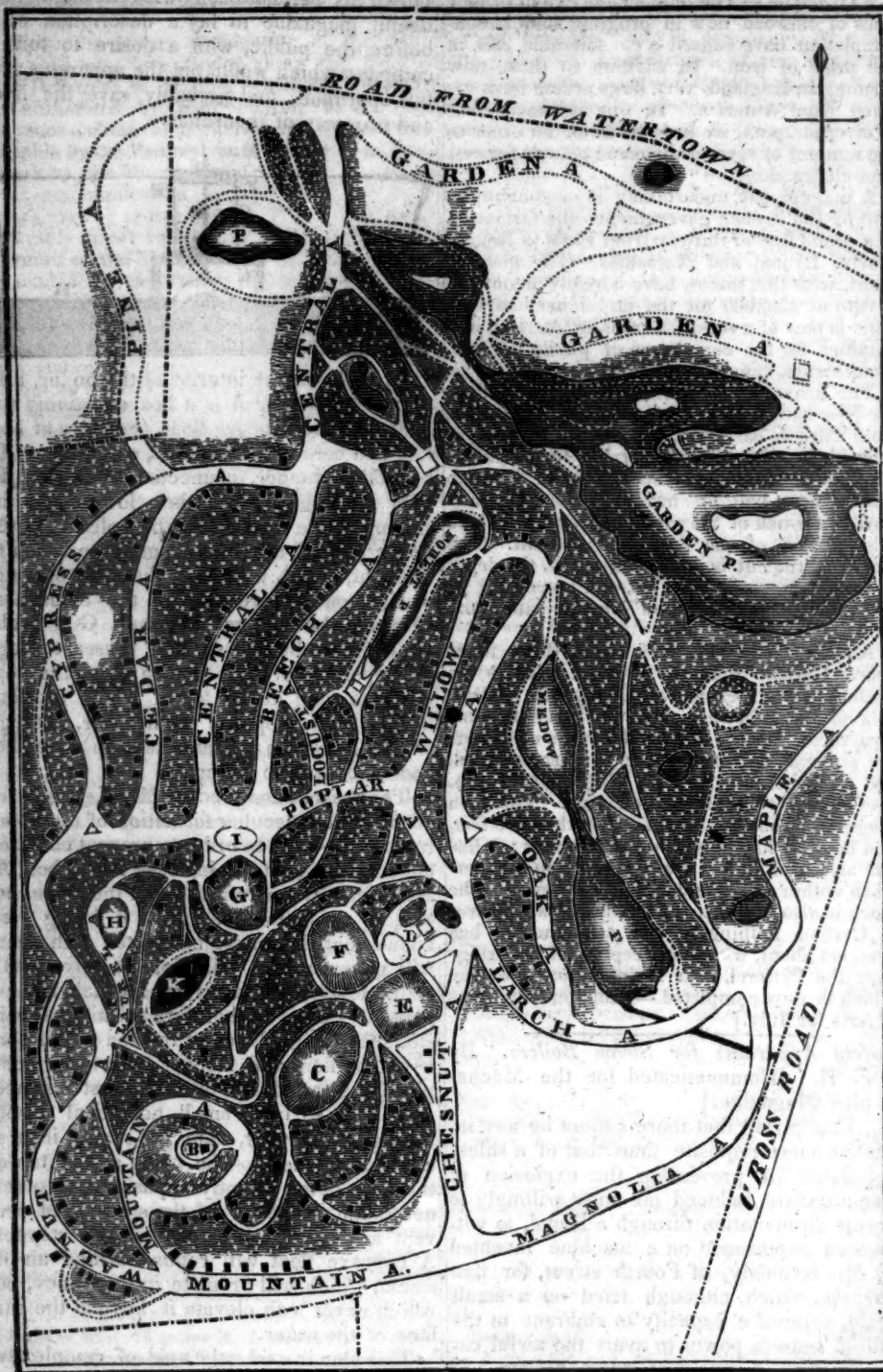
The reasons assigned by Mr. Kennedy for adopting this peculiar formation of the apparatus are,—first, in order to prevent ebullition affecting the float, he incloses it in a box, A, and admits water to it through the sides, not at top or bottom; second, it being well known that the gasses connected with steam will cause a firm adhesion of any metals which touch each other, and which are exposed to steam, he therefore substitutes soap-stone for the guidance of the rod which connects the float and stopper: this being completely saturated with oil in the first instance, and kept so by a small additional supply through the stopper, along the rod E, insures a certain action. The holes at the top of the tube being directly opposite each other, neutralize the power of the steam, and prevent any partial pressure on the stopper. A concave float will retain rarified air or steam, which will promote its buoyancy, but which never can elevate it beyond the surface of the water.

This plan is evidently void of complexity, either in its working or formation, having but one simple operation; therefore, in every respect highly commendable. F. H.

Quick Travelling.—A gentleman left Boston on Friday morning at 5 o'clock, and arrived by stages, steamboats and rail-ways, at the wharf in Baltimore, at 20 minutes before 2 on Sunday morning—making the journey in 44 hours and 40 minutes, from city to city—distance about 500 miles.

A singular case of a severe burn cured by the solution of the chloride of soda, is recorded in the London Lancet. An attorney, in attempting to put out the flames that had attacked the curtains of his bed, had got his hands burned, blistered but not broken. He sent for a couple of quarts of the lotion, (4 oz. of the solution to a pint of water) had it poured into soup plates, wrapped his hands in lint, as no skin was broken; and so kept them for some time. Next morning he was so perfectly well that only one small dried patch of burn remained; yet an hour and a half had elapsed before the application. The same solution has been equally effectual in scalds and bruises. It never fails almost immediately to heal a black eye. When the chloride is used for scalds, it is necessary to use with it in the after applications some spermaceti ointment.

PLAN OF THE GROUNDS FORMING THE CEMETERY AT MOUNT AUBURN, NEAR BOSTON.



MOUNT AUBURN CEMETERY.—The following plan of the Mount Auburn Cemetery, together with the proceedings of the Boston Horticultural Society, are taken from the N. Y. Farmer and Am'n Gardener's Magazine; and we are sure that it will be read by none with greater interest than by those who read the MECHANICS' MAGAZINE. It can be read by no person who has a taste for eloquence, or who ever reflects upon the subject to which it refers—the last resting-place of all mankind in this world,—without producing a salutary influence upon his feelings, and possibly upon his future life.

RURAL CEMETERY.—In our last we alluded to the establishment of a rural cemetery in the immediate vicinity of Boston, and promised a more minute description of it in a subsequent number; we proceed, therefore, to redeem that promise, by giving the following account of the origin of the plan, together with the eloquent address of JUDEN SRO.

RY at its consecration, and a plan of the grounds as laid out for cultivation.

Who that reads the following truly appropriate address will not join with us in urging our prominent citizens to step forward and give the weight of their influence to a similar measure? Why not the New-York, as well as the BOSTON HORTICULTURAL SOCIETY, adopt a similar measure, and thereby prevent its falling into the hands of speculators?

In the plan, the dotted lines show the contemplated paths and avenues, also the contraction of the ponds; and the square dots along the paths and avenues show the lots of 200 square feet purchased by individuals. The other references are as follow: A, Avenues; B, Mount Auburn; C, Harvard Hill; D, Temple Hill; E, Juniper Hill; F, Cedar Hill; G, Pine Hill; H, Laurel Hill; I, Central Square; K, Consecrated Dell; P, Ponds.

"Six or seven years ago meetings were

held and measures taken, to carry into effect the plan of a private Rural Cemetery. But although there appeared to be no want of interest in the design, and of numbers sufficient to effect its execution, yet the scheme was suspended, from the difficulty of obtaining, at that time, a lot of land in all respects eligible for the purpose.

"After the establishment of the Massachusetts Horticultural Society, in 1829, it occurred to some of its members that a cemetery, of the character which had been desired, might with great propriety be instituted under the auspices of this new society, and that by a union of the interests of each institution, the success and permanency of their objects might be reciprocally promoted. Upon a notification, signed by Dr. J. Bigelow and John C. Gray, Esq. a meeting of gentlemen was held at the Exchange Coffee House, November 27, 1830, for the general consideration of the subject. At this meeting it was announced that a tract of ground, or about seventy acres, at the place then called Sweet Auburn, and owned by G. W. Brimmer, Esq. would be placed at the disposal of the society. A committee was appointed at a cotemporaneous meeting of the Horticultural Society, to consider the expediency of making this purchase, and to devise measures for forwarding the design of a Rural Cemetery and Experimental Garden. This committee afterwards obtained leave to fill their own vacancies, and to enlarge their number by the addition of persons not members of the Horticultural Society. A report in behalf of this committee was afterwards made by General H. A. S. Dearborn, President of the Society, and published in the newspapers, in which an extensive and able exposition was made of the advantages of the undertaking.

"At a meeting of persons favorably disposed towards the design, held at the Horticultural Rooms, June 8th, 1831, a strong and general wish was manifested for the immediate prosecution of the undertaking. A committee of twenty was chosen to consider and report upon a general plan of proceedings. The following gentlemen constituted this committee: Messrs. Joseph Story, Daniel Webster, Henry A. S. Dearborn, Samuel Appleton, Charles Lowell, Jacob Bigelow, Edward Everett, George Bond, George W. Brimmer, Abbot Lawrence, Jacob T. Austin, Franklin Dexter, Alexander H. Everett, Charles P. Curtis, Joseph P. Bradley, John Pierpont, Zebedee Cook, jr. Charles Tappan, Lucius M. Sargeant, and George W. Pratt. This committee subsequently offered the following report, which was accepted, and made the basis of subscription for those who might become proprietors.

"The Committee of the Horticultural Society, to whom was referred the method of raising subscriptions for the Experimental Garden and Cemetery, beg leave to report:

"1. That it is expedient to purchase, for a Garden and Cemetery, a tract of land commonly known by the name of Sweet Auburn, near the road leading from Cambridge to Watertown, containing about seventy-two acres, for the sum of six thousand dollars; provided this sum can be raised in the manner proposed in the second article of this report.

"2. That a subscription be opened for lots of ground in the said tract, containing not less than two hundred square feet each, at the price of sixty dollars for each lot,—the sub-

scription not to be binding until one hundred lots are subscribed for.

"3. That when a hundred or more lots are taken, the right of choice shall be disposed of at an auction, of which seasonable notice shall be given to the subscribers.

"4. That those subscribers who do not offer a premium for the right of choosing, shall have their lots assigned to them by lot.

"5. That the fee of the land shall be vested in the Massachusetts Horticultural Society, but that the use of the lots, agreeably to an act of the Legislature respecting the same, shall be secured to the subscribers, their heirs, and assigns, forever.

"6. That the land devoted to the purpose of a Cemetery shall contain not less than forty acres.

"7. That every subscriber, upon paying for his lot, shall become a member for life, of the Massachusetts Horticultural Society, without being subject to assessments.

"8. That a Garden and Cemetery Committee, of nine persons, shall be chosen annually, first by the subscribers, and afterwards by the Horticultural Society, whose duty it shall be to cause the necessary surveys and allotments to be made, to assign a suitable tract of land for the Garden of the Society, and to direct all matters appertaining to the regulation of the Garden and Cemetery; and five at least of this committee shall be persons having rights in the Cemetery.

"The tract of land which has received the name of Mount Auburn, is situated on the southerly side of the main road leading from Cambridge to Watertown, and is partly within the limits of each of those towns. Its distance from Boston is about four miles. The place was formerly known by the name of Stone's Woods, the title to most of the land having remained in the family of Stone from an early period after the settlement of the country. Within a few years, the hill and part of the woodland were offered for sale, and were purchased by George W. Brimmer, Esq. whose object was to prevent the destruction of the trees, and to preserve so beautiful a spot for some public or appropriate use. The purchase which has now been made by the Horticultural Society includes between seventy and eighty acres, extending from the road nearly to the banks of Charles river. A portion of the lane situated next to the road, and now under cultivation, is intended to constitute the Experimental Garden of the Horticultural Society. A long water-course extending between this tract and the interior woodland forms a natural boundary, separating the two sections. The inner portion, which is set apart for the purposes of a Cemetery, is covered throughout most of its extent with a vigorous growth of forest trees, many of them of large size, and comprising an unusual variety of kinds. This tract is beautifully undulating in its surface, containing a number of bold eminences, steep acclivities, and deep shadowy valleys. A remarkable natural ridge with a level surface runs through the ground from south-east to north-west, and has for many years been known as a secluded and favorite walk. The principal eminence, called Mount Auburn in the plan, is one hundred and twenty-five feet above the level of Charles river, and commands from its summit one of the finest prospects which can be obtained in the environs of Boston. On one side is the city in full view, connected at its extremities with Charleston and Roxbury. The

serpentine course of Charles river, with the cultivated hills and fields rising beyond it, and having the Blue Hills of Milton in the distance, occupies another portion of the landscape. The village of Cambridge, with the venerable edifices of Harvard University, are situated about a mile to the eastward. On the north, at a very small distance, Fresh Pond appears, a handsome sheet of water, finely diversified by its woody and irregular shores. Country seats and cottages, seen in various directions, and especially those on the elevated land at Watertown, add much to the picturesque effect of the scene. It is proposed to erect, on the summit of Mount Auburn, a tower, after some classic model, of sufficient height to rise above the tops of the surrounding trees. This will serve the double purpose of a landmark to identify the spot from a distance, and of an observatory, commanding an uninterrupted view of the country around it. From the foot of this monument will be seen in detail the features of the landscape, as they are successively presented through the different vistas which have been opened among the trees; while, from its summit, a magnificent and unbroken panorama, embracing one of the most delightful tracts in New-England, will be spread out beneath the eye. Not only the contiguous country, but the harbor and bay of Boston, with their ships and islands, and, in a clear atmosphere, the distant mountains of Wachusett, and probably even of Monadnock, will be comprehended within the range of vision.

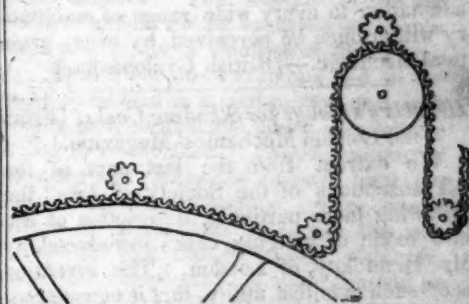
"The grounds of the cemetery have been laid out with intersecting avenues, so as to render every part of the wood accessible. These avenues are curved and variously winding in their course, so as to be adapted to the natural inequalities of the surface. By this arrangement the greatest economy of the land is produced, combining at the same time the picturesque effect of landscape gardening. Over the more level portions the avenues are made twenty feet wide, and are suitable for carriage roads. The more broken and precipitous parts are approached by foot-paths, which are six feet in width. These passage-ways are to be smoothly gravelled, and planted on both sides with flowers and ornamental shrubs. Lots of ground, containing each three hundred square feet, are set off as family burial places, at suitable distances, on the sides of the avenues and paths. The perpetual right of inclosing and of using these lots, as places of sepulture, is conveyed to the purchasers of them by the Horticultural Society. It is confidently expected that many of the proprietors will, without delay, proceed to erect upon their lots such monuments and appropriate structures as will give to the place a part of the solemnity and beauty which it is destined ultimately to acquire.

"It has been voted to procure, or construct, a receiving tomb in Boston, and another at Mount Auburn, at which, if desired, funerals may terminate, and in which the remains of the deceased may be deposited until such time as the friends shall choose to direct their removal to the Cemetery; this period, however, not to exceed six months.

"The principal entrance to Mount Auburn will be through a lofty Egyptian gateway, which it is proposed to erect on the main road, at the commencement of the Central Avenue. Another entrance or gateway is provided on the cross road, at the eastern

foot of the hill. Whenever the funds of the corporation shall justify the expense, it is proposed that a small Grecian or Gothic Temple shall be erected on a conspicuous eastern eminence, which in reference to this allotment has received the prospective name of Temple Hill.

"The recent purchase and disposition of the grounds at Mount Auburn has effected the consummation of the two designs, which, for a considerable time, have been cherished by numerous members of the community in the city of Boston and its vicinity. One of these is the institution of a garden for the promotion of Scientific Horticulture; the other, the establishment in the environs of the city of a retired and ornamented place of sepulture."



GEARING CHAIN.—An ingenious and useful construction of gearing chain for connecting cog-wheels, has lately been invented by Mr. Oldham, engineer, of the Bank of Ireland, which we think highly deserving of the attention of machinists, as it is so extensively applicable to various kinds of machinery, such as carding engines; and indeed in almost every situation where a series of toothed wheels are required to be driven by one mover. It consists of a peculiarly constructed chain, with curved links, which when passed round a drum will serve as teeth, and act as a cog-wheel to turn pinions, &c.; and when stretched out straight, or placed on a flat surface, will form an endless rack. It may also be passed over and under a series of rollers, pinions, &c., forming a carrying-chain, instead of the commonly constructed chains, in which spiked wheels are employed to take in the links.

In carding engines, and various other kinds of machinery, this improved chain will work with much better effect in connection with pinions, or wheels with common teeth, into which it is suited to gear, than the old chains, and without the possibility of slipping off, or riding over the points of spiked wheels, having a broader surface of contact; and it is not at all liable to get out of order, being much stronger than the old linked chain used with spur pinions.

It is formed by crescent-shaped plates constituting links, which are connected together; and one and two plates alternately, or two and three, or more, placed side by side; the alternate links fitting in between each other at the joints, where they are connected by pins, or bolts, passed through their eyes in lateral directions.

It will be obvious that these curved links present on one surface of the chain semi-circular hollows like a rack, for the teeth of the pinions to take into, and that the ends of the links, where the bolts or rivets are passed through, are also formed semi-circular, and the same size as the spaces or hollows of the links. These ends constitute teeth on the chain, and take into the spaces between

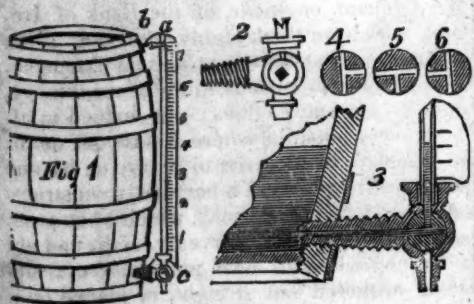
the teeth of the pinions or wheels, and consequently drive them; or the chain itself may be driven by such pinions or wheels in the same way as a rack.

It is evident that such a chain may be passed in various directions over wheels, on its face, and over drums at its back, and may be used with certainty of effect: as whatever motion is given to the chain will be communicated to all that is in gear with it.

The accompanying engraving shows such a chain, supposed to be endless, carried over part of the periphery of a carding cylinder, and constituting a circular rack or toothed rim, which drives all the pinions connected to it; the back of the chain is conducted over a roller, and brought into gear with other pinions or wheels; but as numerous illustrations might be produced of its applicability, it is unnecessary to say more, as its adaptation to every wide range of machinery will at once be perceived by every practical mechanic.—[British Cyclopædia.]

Hennekey's Gauge for Standing Casks. [From the London Mechanics' Magazine.]

We extract from the last part of the "Transactions of the Society of Arts" the following more particular description of the new mode of gauging casks introduced by Mr. Hennekey, of London. The invention is of such manifest utility, that it can scarcely fail to come into universal use; and has very deservedly obtained for the inventor the honor of the Society's silver Isis Medal.



"Fig. 1 is an elevation of a cask with the gauge applied to it. Fig. 2 is the cock c in fig. 1, on a large scale; it has three openings, one above, one below, and one in the side; by means of the screw in the latter opening, it is fixed firmly into the cask, as shown in the section, fig. 3. An upright wooden bar is then secured to the outside of the cask, having a groove b in it, corresponding with, and being, as it were, a continuation of the upper pipe of the cock c; in this groove is placed a glass tube, open at both ends, the lower part of which drops into the upper pipe of the cock, and is fixed there by means of white lead, or any other cement not acted on by spirit or by water; the tube is also secured above by a ring or cap. Parallel with the tube is a brass plate, on which the divisions are subsequently to be marked. The plug of the cock has three ways or openings, as shown in figs. 3, 4, 5, 6. A tongue or index projects from the plug, indicating the position of one of these ways; it may be seen in fig. 2—the position of which corresponds with that of the sectional view, fig. 3.

"The apparatus being complete as above described, the cock is turned to the position fig. 3, and the cask is filled by a hole at the top. It is evident, therefore, that the liquor will stand in the tubes at the same height it does in the cask, provided the tube is wide

enough to avoid any sensible error from capillary attraction: this height is marked as the b or zero of the scale. The plug of the cock is then turned to the position fig. 6, and a given measure is drawn off, forming the unit of the scale. In the large standing casks, the quantity that is found practically the most convenient is five gallons. The plug is then returned to its former position, and the column of liquor in the tube will now be lower than the zero; the point at which it stands is to be marked on the scale as before. Proceeding in this manner to draw off successively five gallons at a time, the whole contents of the cask are thus transferred to the scale, each division of which represents five gallons, and the scale may be numbered upwards or downwards, as may be found the most convenient. The scale should not be continued to the bottom of the tube, but should terminate at the point where the dregs are usually found to begin. It is best not to leave a column of liquid constantly in the tube, as a deposit in that case takes place on the inside, which obscures it; when, therefore, any liquor has been drawn off, the plug of the cock should be brought to the position fig. 4, and previously to drawing off a fresh quantity, the plug should be brought to the position fig. 6.

"By the adoption of this method of graduation, the liquor dealer may take stock every day in a few minutes, by merely turning the plugs to the position fig. 3, and then reading the number corresponding with the height of liquor in the glass tube attached to each cask.

"Mr. Hennekey also finds these graduated casks to save much time and give greater precision, in making different liquors to form those compounds which are required by his customers. If, for example, he wants to mix together spirit and syrup in any given proportion, he puts the two liquors into separate casks on the ground floor, and places an empty cask, also graduated, on the platform above, and then pumps from the lower casks into the upper one the determined quantity of each ingredient; he then allows the mixture to remain for twenty-four hours, after which he reads off the quantity, and, by comparing this with the previously known quantity of the separate ingredients, ascertains how much has been lost in volume by condensation, and therefore how much additional price must be charged as an equivalent."

Hints for the Packing up of Machinery, and preserving it in working order. [From the London Mechanics' Magazine.]

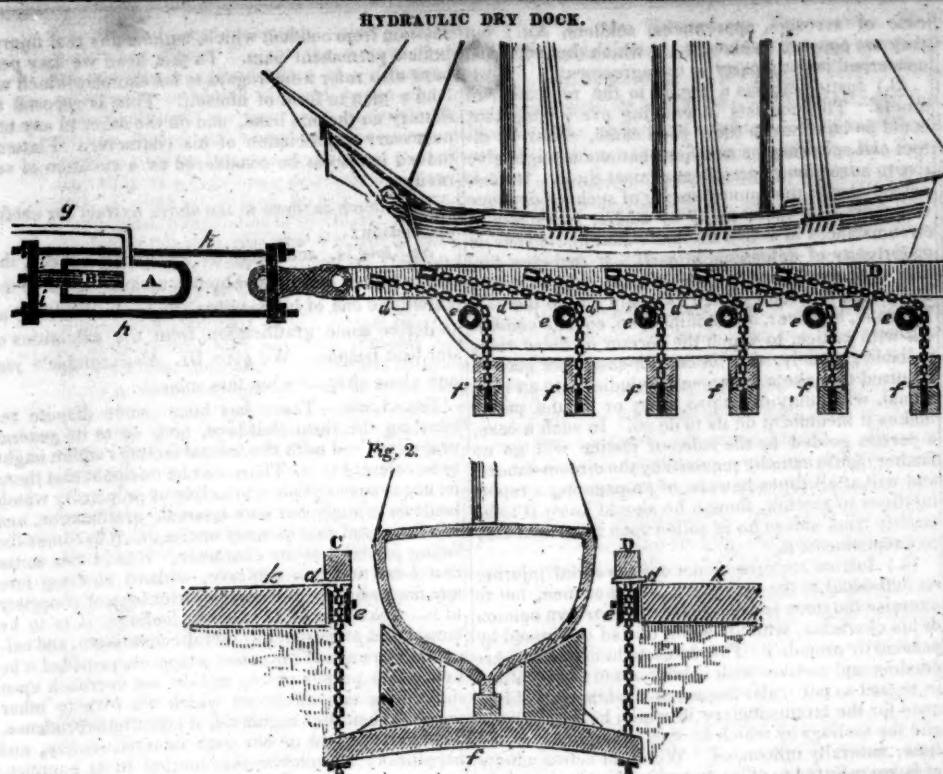
Extract from a letter from James Watt, Esq., of Soho, to John Barrow, Esq., of the Admiralty, London:

"Before sending off the materials of engines, the bored or turned cast iron parts are all well greased, and the latter wrapped with rope-yarn, and the outside of the castings receive a coat of oil paint; the polished wrought iron work is well greased and packed in boxes with dry saw-dust. The precautions do not, however, prevent rust for any great length of time; this was experienced in the materials of his Majesty's steamer, the Alban, which we delivered at Deptford yard, in May or June, 1826; but the vessel not being ready, the boxes with the wrought iron goods were deposited in what appeared to be a dry store-room, and, as far as I recollect, the saw-dust removed. On proceeding to erect the

engines some six months afterwards, the wrought iron work was found to be much corroded by rust, and the repolishing and refitting was attended with considerable expense and loss of time. We find also that in our hands here, when similar materials are laid by for any length of time in the driest rooms we have, they require repolishing. This would be the case if the engines were erected, but we do not think the expense incurred in keeping the parts in order would be much increased;* indeed, I have adopted this plan myself in an iron work belonging to me, where I have had occasion to increase the power without the hope of letting it out in the present time. . . . If the engines are not to be erected, the boxes should be immediately opened, the saw-dust removed, and all the wrought iron work well cleaned and fresh greased. It should be kept in a dry storehouse, and, if possible, in one occasionally heated; the cylinders, air pumps, &c. should also be cleaned out and fresh greased, and all the castings, as well as the boilers, should be put under sheds, to protect them from the wet, &c."

* The meaning is here somewhat obscure; but we understand it to be, that the expense of keeping an engine in good working order, by having a person to attend to it, and working it occasionally, is not much more than the cost of repolishing and refitting.—Ed. M. M.

FAMILY STEAMER.—Scarcely ever (says the Nashville Banner) have we seen a little apparatus so admirably adapted, for its simplicity, its easy application, and its various and important uses, to the convenience and comfort of the neat and industrious housewife, as that which has recently fallen under our notice with the above appropriate title. It is a portable steam generator, whose principal object is to assist in creating and preserving cleanliness, to destroy noxious insects and vermin, and to prevent their increase. It is used without trouble or inconvenience, and supercedes the annoying application of water in many cases. That vexatious but indispensable ceremony, which is after all too often ineffectual, the cleaning of bedsteads, may be performed most thoroughly by the aid of this apparatus, without taking them apart or removing them, and without the slightest injury to the floor or carpet upon which they stand. Not a bug or other insect can possibly escape the searching and destructive power of this instrument. For cleansing furniture, removing spots from paint, purifying varnish, cleaning windows, and looking-glasses, picture frames, maps, &c. it is most completely adapted. Its penetrating power is truly wonderful. The smallest crack or fissure may be thoroughly searched, and every thing harbored there effectually removed. It may be useful, too, to destroy worms, which so often infest fruit trees, without injuring the trees themselves; and to remove skippers from bacon without affecting the meat. In fine, in those numerous essential family operations, which, while they contribute to neatness, health, and comfort, are so often full of trouble and vexation to the matron, and to all about her, it is an almost invaluable auxiliary, and when it shall be introduced into general use, we have no doubt it will rank among the most valuable and indispensable articles of householdery. It is capable likewise of being employed in many cooking operations to great advantage. It will, for example, boil eggs or potatoes with great ease, and in a most excellent manner.



Hydraulic Dry Dock. [Communicated for the Mechanics' Magazine, and Register of Inventions and Improvements.]

MR. EDITOR—Agreeably to your request, I visited the hydraulic dry dock of Messrs. Ring & Co., in this city, and was highly gratified and unutterably astonished at witnessing the gigantic power of a little machine called a hydraulic ram. A ship of 300 tons was raised in my presence, in the short space of an hour, together with the other heavy apparatus, high and dry, out of the water!

The hydraulic ram is nothing more than a hollow cylinder, equal in length to the immersed part of the vessel to be raised; it is provided with a stuffed collar, water-tight, thro' which passes a turned iron plug, called a ram; to one end of this ram is fixed a strong iron plate, connected to a corresponding one at some distance beyond the cylinder, by strong iron bars, and also connected with a sliding beam; to this beam a powerful set of chains are attached, passing over pulleys fixed to the wharf, and passing down into the water, where they are fastened to the timbers of the cradle, in which the ship is to be placed. As I have thus far only described one apparatus, it will be necessary to mention that there are two wharves, and two sets of apparatus, exactly alike—one of which I have given a longitudinal section of.

REFERENCES.—A, the cylinder; B, the ram; C D, the sliding beam; d, stationary slats, on which the sliding beam moves; e, the pulleys; f, timbers of the cradle; g, the tube, which in this case is 80 feet long; h, bars connecting the two plates; i i, the two plates; k k, the wharves. Fig. 2 is a transverse section, with the references to correspond with the other.

The mode of raising a ship is as follows: She is brought in between the two wharves, exactly over the cradle—the chains are then tightened, so as to make the blocks come in contact with the keel—water is then forced into the cylinder, through a small tube, by means of a pump, which causes the ram to be forced out, drawing with it the sliding beams, raising the cradle with the ship, in a

slow but majestic manner, to the required height. Respectfully, yours,

G. LANSING.

New-York, Aug. 8, 1833.

INCOMBUSTIBLE WASH AND STUCCO WHITE WASH.—The basis for both is lime, which must be first slacked with hot water, in a small tub or piggin, and covered, to keep in the steam; it then should be passed, in a fluid form, through a fine sieve, to obtain the flour of the lime. It must be put on with a painter's brush—two coats are best for outside work.

First. To make a fluid for the roof, and other parts of wooden houses, to render them incombustible, and coating for brick tile, stone work and rough cast, to render them impervious to the water, and give them a durable and handsome appearance.—The proportions in each receipt are five gallons. Slack your lime as before directed, say six quarts, into which put one quart of clean rock salt for each gallon of water, to be entirely dissolved by boiling, and skimmed clean; then add to the five gallons one pound of alum, half a pound of copperas, three-fourths of a pound of potash—the last to be gradually added; four quarts of fine sand or hard wood ashes must also be added; any coloring matter may be mixed in such quantity as to give it the requisite shade. It will look better than paint, and be as lasting as slate. It must be put on hot. Old shingles must be first cleaned with a stiff broom, when this may be applied. It will stop the small leaks, prevent moss from growing, render them incombustible, and last many years.

Second. To make a brilliant Stucco White Wash for the Buildings, inside and out.—Take clean lumps of well burnt stone lime; slack the same as before; add one-fourth of a pound of whiting or burnt alum pulverized, one pound of loaf or other sugar, three pints of rice flour made into a very thin and well boiled paste, starch, or jelly, and one pound clean glue, dissolved in the same manner as cabinet-makers do. This may be applied cold within doors, but warm outside. It will

be more brilliant than plaister of paris, and retain its brilliancy for many years, say from fifty to one hundred. It is superior, nothing equal. The east end of the President's house in Washington is washed with it.

PROCESS FOR SILVERING IRON.—Iron is not easily silvered. The following process will be found convenient in its application to both large and small iron utensils.

After having scoured the piece of iron to be silvered, let it be very evenly rubbed with sand paper, and then dipped into a warm solution of sulphate of copper, (blue vitriol,) or of acetate of copper, (verdigris); when its surface has become red, immerse it in clean water. Should the copper not cover the surface equally, it must be again dipped into the solution. The solution of the salt of copper should not be so strong as to produce a precipitate of small particles of copper. Melt silver in a crucible, and let the iron be immersed in it, and rubbed over with a proper tool, so that the silver may adhere equally to its surface. This operation of immersing and rubbing is repeated until the silver is very evenly applied. Care should be taken to press, and not to rub, the surface, lest the thin coat of copper, which facilitates the adhesion of the silver, should be scraped off. When the silvering seems complete, the articles are removed from the crucible and polished.—[Journal des Connaissances Usuelles.]

WATER SPOUT ON THE LAKE OF GENEVA.

—M. Mayor, who resides at Mollard Place, Geneva, in looking through his window, which faces the lake, saw, to his astonishment, on the third of December last, about a quarter before eight in the morning, in the direction of *Paquis* and *Secheron*, a vertical column of water, at least sixty or eighty feet high, and several feet in diameter, larger at its base than its summit, of a grey color, and appearing animated with a gyratory motion. The column rested on the lake below, and was bent towards the top in the form of a bow. It remained nearly two minutes without any sensible change of place; and then sunk, by degrees, from above, by diffusing itself in a shower of rain. At this juncture a south-west wind ruffled the surface of the lake; the sky was entirely covered with thick vapors, which occupied the upper regions, while there were, properly speaking, no clouds in the horizon.

This is not the first spout seen on Lake Lemman. One which occurred in 1741 was described in the French Academy. It lasted several minutes. Another was seen in 1764, in the month of August, which continued nearly an hour.

In the spout witnessed by M. Mayor, the top of the column had no communication with thick clouds, as is sometimes the case, no trace of any such cloud was to be seen, neither above the column nor in its neighborhood,—hence there were no indications of electrical attraction to which the effect could be attributed, and there seems no means of accounting for the prodigious force then exerted to sustain a column of water of such height, except that which ascribes it to a current or whirlwind of excessive intensity.—[Bib. Univ. 1833.]

A Chain Saw has been invented by Mr. P. P. Quimby, of Belfast, Me. The teeth are riveted together, and the saw is placed round a cylinder in a groove.

NEW-YORK AMERICAN.

AUGUST 10, 12, 13, 14, 15, 16—1833.

LITERARY NOTICES.

THE PHILOSOPHY OF THE MORAL FEELINGS, by JOHN ABERCROMBIE, M. D. being Vol. LVIII of *Harper's Family Library*: N. Y.—The former work of Dr. Abercrombie, on the Intellectual Powers of Man and the Investigation of Truth, which was published some time ago, as No. XXXVII of this same series, will ensure a welcome to his new treatise on a cognate branch of mental philosophy. There is no profession which, in our judgment, affords so good and so frequent opportunities of thoroughly studying the phenomena of our intellectual and moral existence, as that of a physician. While ministering to the bodily ailments which are more or less the lot of all, he has not less to consider and consult the state of the mind and feelings, which react so powerfully upon the material frame with which they are allied, and through which they act and suffer. He sees the human being—animal in so many of his propensities and wants—godlike in his longings after immortality, and in the reach of his lofty intellect—stript of all disguise, and acting naturally. If then he have an observing spirit—previous cultivation and acquirement—and withal a turn for metaphysics—the physician in the sick room has advantages for verifying the many and conflicting hypotheses respecting the intellectual functions—superior to all others. We think Dr. Abercrombie has profited by these advantages, and that in this, the sequel in some sort to his former work, he traces with a steady hand and good discrimination—and withal in a practical manner—the principles which ought to regulate our volitions, and our conduct, as moral and responsible beings. A more important subject, or one of greater interest to each and all of us, can hardly be discussed. We propose by some extracts to show how it is here disposed of.

After laying down the position that the "sense of justice is a primary and essential part of our moral constitution, conveying the distinct impression of certain conduct which a man owes to his fellow men without regard to any considerations of a personal nature, and apart from all enactments or laws, divine or human," the author thus proceeds to define this "sense of justice," and illustrate its operation.

The sense of justice consists in a feeling experienced by every man, of a certain line of conduct which he owes to other men in given circumstances; and this seems to be referable to the following heads:—attending to their interest,—not interfering with their freedom of action,—preserving their reputation,—estimating their character and motives,—judging of their opinions,—consulting their feelings,—and preserving or improving their moral condition. As a guide for his conduct in particular instances, a man has usually a distinct impression of what he thinks due by other men towards himself; justice requires that he rightly extend to others the same feelings and conduct which, in similar circumstances, he expects from them.

(1.) Justice is due to the persons, property, and interests of others. This constitutes Integrity or Honesty. It, of course, implies abstaining from every kind of injury, and preserving a conscientious regard to their rights. In this last respect, it allows us to exercise a prudent attention to our own interest, provided the means be fair and honourable, and that we carefully abstain from injuring others by the measures we employ for this purpose. The great rule for our guidance in all such cases is found in the immutable principles of moral rectitude; the test of our conduct in regard to individual instances is, that it be such as, were our own interest concerned, we should think fair and honorable in other men.

(2.) Justice requires us not to interfere with the freedom of action of others. This constitutes personal liberty; but in all civil communities the right is liable to certain restrictions: as when a man uses his freedom of action to the danger or injury of other men. The principles of justice may also recognize a man's surrendering, to a certain extent, his personal liberty, by mutual and voluntary compact, as in the

case of servants, apprentices, soldiers, &c.; but they are opposed to slavery, in which the individual concerned is not a party to the agreement.

(3.) Justice enjoins a regard to the reputation of others. This consists in avoiding every thing that could be injurious to their good name, either by direct evil-speaking, or such insinuations as might give rise to suspicion or prejudice against them. It must extend also to the countenancing of such insinuations when we hear them made by others, especially in circumstances in which the individual injured has no opportunity of defending himself. It includes, further, that we do not deny to others, even to rivals, any praise or credit which is justly due to them.—There is, however, one modification, equally consistent with justice, to which the former of these rules is liable; namely, that in certain cases, we may be required to make a statement prejudicial to an individual, when duty to a third party or to the public makes it incumbent on us to do so. In such a case, a person guided by the rules of justice will go no farther than is actually required by the circumstances; and will at all times beware of propagating a report injurious to another, though he should know it to be strictly true, unless he is called upon by special duty to communicate it.

(4.) Justice requires us not only to avoid injuring an individual in the estimation of other men, but to exercise the same fairness in forming our own opinion of his character, without being misled or biased by passion or prejudice. This consists in estimating his conduct and motives with calmness and impartiality; in regard to particular instances, making full allowance for the circumstances in which he was placed, and the feelings by which he was, or might be, at the time, naturally influenced. When an action admits of being referred to different motives, justice consists in taking the more favorable view, if we can do so with strict regard to truth, instead of harshly and hastily assigning a motive which is unworthy. Such justice in regard to character and motives we require to exercise with peculiar care, when the conduct referred to has been in any way opposed to our own self-love. In these cases we must be especially on our guard against the influence of the selfish principle, which might lead to partial and distorted views of actions and motives, less favorable to others, and more favorable to ourselves, than justice warrants. When viewed in this manner, we may often perceive, that conduct which gave rise to emotions of displeasure, as injurious to us, was fully warranted by some conduct on our own part, or was required by some high duty which the individual owed to another.

(5.) Justice is to be exercised in judging of the opinions and statements of others. This constitutes Candor. It consists in giving a fair and deliberate hearing to their opinions, statements, and arguments, and weighing fairly and honestly their tendency. It is, therefore, opposed to prejudice, blind attachment to preconceived opinions, and that narrow disputatious spirit which delights in captious criticism, and will hear nothing with calmness that is opposed to its own views; which distorts or misrepresents the sentiments of its opponents, ascribing them to unworthy motives, or deducing from them conclusions which they do not warrant. Candor, accordingly, may be considered as a compound of justice and the love of truth. It leads us to give due attention to the opinions and statements of others,—in all cases to be chiefly solicitous to discover truth, and in statements of a mixed character, containing perhaps much error and fallacy, anxiously to discover and separate what is true. It has accordingly been remarked, that a turn for acute disputation, and minute and rigid criticism, is often the characteristic of a contracted and prejudiced mind; and that the most enlarged understandings are always the most indulgent to the statements of others,—their leading object being to discover truth.

(6.) Justice is due to the feelings of others; and this applies to many circumstances which do not affect either their interest or their reputation. Without injuring them in any of these respects, or in our own good opinion, we may behave to them in such a manner as to wound their feelings. There are minds of an extreme delicacy, which, in this respect, are peculiarly sensitive; towards such, a person of correct feelings strives to conduct himself with suitable tenderness. We may find, however, persons of honest and upright minds, who would shrink from the least approach to real injury, but yet neglect the necessary attention to the feelings; and may even confer a real benefit in such a manner as to wound the individual to whom they intended kindness. The lower degrees of this principle pertain to what is called mere good breeding, which has been defined "benevolence in trifles;" but the higher degrees may

restrain from conduct which, without any real injury, inflicts permanent pain. To this head we may perhaps also refer a due regard to the estimate which we lead a man to form of himself. This is opposed to flattery on the one hand, and on the other to any unnecessary depreciation of his character.—Flattery indeed is also to be considered as a violation of veracity.

How much is there in the above extract for useful meditation!

Self-love is, according to *La Rochefoucauld*, the one unfailing principle of human actions—even to the extent, as one of his maxims alleges, of enabling us to derive some gratification from the calamities of our best friends. We give Dr. Abercrombie's just and clear chapter upon this subject:

SELF-LOVE.—There has been some dispute respecting the term *Self-love*, both as to its general propriety, and as to the mental feelings which ought to be referred to it. There can be no doubt that there is, in our constitution, a principle or propensity which leads us to study our own interest, gratification, and comfort; and that in many instances, it becomes the ruling principle of the character. It is in this sense that I use the term *self-love*, without entering into any discussion regarding the strict logical propriety of it. Like the other mental feelings, it is to be considered as part of our moral constitution, and calculated to answer important purposes, provided it be kept in its proper place, and do not encroach upon the duties and affections which we owe to other men. When thus regulated, it constitutes prudence, or a just regard to our own interest, safety, and happiness; when it becomes morbid in its exercise, it degenerates into selfishness.

A sound and rational *self-love* ought to lead us to seek our own true happiness, and should prove a check upon those appetites and passions which interfere with this; for many of them, it must be allowed, may not be less adverse to our own real interest and comfort than they are to our duty to other men. It should lead us, therefore, to avoid every thing, not only that is opposed to our interest, but that is calculated to impair our peace of mind, and that harmony of the moral feelings without which there can be no real happiness. This includes a due regulation of the desires, and a due exercise of the affections, as a moral condition which promotes our own happiness and comfort. *Self-love*, viewed in this manner, appears to be placed as a regulating principle among the other powers,—much inferior indeed to the great principle of conscience, so far as regards the moral condition of the individual,—but calculated to answer important purposes in promoting the harmonies of society. The impression on which its influence rests appears to be simply the comfort and satisfaction which arises to ourselves from a certain regulation of the desires, and a certain exercise of the affections, and the feelings of an opposite kind which follow a different conduct. These sources of satisfaction are manifold. We may reckon among them the pleasure attached to the exercise of the affections themselves, a feature of our moral constitution of the most interesting kind, the true mental peace and enjoyment which spring from benevolence, friendship, meekness, forgiveness, and the whole train of the kindly feelings,—the gratitude of those who have experienced the effects of our kindness,—the respect and approbation of those whose esteem we feel to be valuable,—and the return of similar affections and good offices from other men. On the other hand, we have to keep in mind the mental agony and distraction which arises from jealousy, envy, hatred, and resentment,—the sense of shame and disgrace which follow a certain line of conduct,—and the distress which often arises purely from the contempt and disapprobation of our fellow-men. "Disgrace," says Butler, "is as much avoided as bodily pain,"—we may safely say that it is much more avoided, and that it inflicts a suffering of a much more severe and permanent nature. It must likewise accord with the observation of every one, that among the circumstances which most frequently injure our peace and impair our comfort, are those which ruffle the mind by mortifying our *self-love*. There is also a feeling of dissatisfaction and self-reproach which follows any neglect of a due exercise of the affections, and which, in a well-regulated mind, disturbs the mental tranquillity fully as much as the disapprobation of other men. It is further evident, that the man of ungoverned passions and ill-regulated affections impairs his own peace and happiness as much as he violates his duties to others,—for his course of life is productive, not only of degradation in the eyes of his fellow-men,

but often of mental anguish, misery, disease, and premature death. To run the risk of such consequences for the gratification of a present appetite or passion, is clearly opposed to the dictates of a sound self-love, as has been distinctly shown by Bishop Butler; and when, in such a case, self-love prevails over an appetite or passion, we perceive it operating as a regulating principle in the moral system. It does so, indeed, merely by the impression, that a certain regulation of the moral feelings is conducive to our own true and present happiness; and this shows a wonderful power of compensation among these feelings, referable entirely to this source. But it is quite distinct from the great principle of conscience, which directs us to a certain line of conduct on the pure and high principle of moral duty, apart from all considerations of a personal nature—which leads a man to act upon nobler motives than those which result from the most refined self-love, and calls for the mortification of all personal feelings, when these interfere in the smallest degree with requirements of duty. This distinction I conceive to be of the utmost practical importance, as it shows a principle of regulation among the moral feelings themselves, by which a certain exercise of the affections is carried on in a manner which contributes in a high degree to the harmonies of society, but which does not convey any impression of moral approbation or merit that can be applied to the agent.

Self-love, then, leads us to consult our own feelings, and to seek directly our own interest and happiness. The affections lead us to allow for the feelings; and consider the advantage and comfort of other men; and a certain balance between these principles is essential to the healthy state of the moral being.—It is seldom that the affections are like to acquire an undue influence, but there is great danger of self-love degenerating into selfishness, which interferes with the duties we owe to others. We have formerly alluded to the means, referable to the due exercise of the affections, and even to a sound and rational self-love, by which this should be in part prevented.—When these are not sufficient, the appeal is to conscience; or a distinct reference of individual cases is made to the great principle of moral rectitude.—We find, accordingly, this principle called into action when a man has become sensible of important defects in his moral habits. Thus, we may see a man, who has long given way to a peevish or irascible disposition, that is, to selfish acting upon his own feelings, without due regard to the feelings of others, setting himself to contend with this propensity upon the score of moral duty; while another, of a placid disposition, has no need of bringing the principle into action for such a purpose. In the same manner, a person who has indulged a cold contracted selfishness may, under the influence of the same great principle, perform deeds of benevolence and kindness. Thus we perceive that the moral principle or sense of duty, when it is made the regulating motive of action, is calculated to control self-love, and preserve the proper harmony between it and the exercise of the affections.

When the principle of self-love becomes deranged in its exercise and objects, it leads to those habits by which a man seeks his own gratification in a way which interferes with his duties to other men. This he may do by an undue pursuit of any of the desires—whether avarice, ambition, love of eminence, or love of fame; and the desire of knowledge itself may be so indulged as to assume the same character. Even deeds of benevolence and kindness may be performed on this principle,—as when a man, by such actions, seeks only the applause of the public, or the approbation of certain individuals, from whom, it may be, he expects to derive advantage. Hence the value we attach, in the exercise of all the affections, to what we call disinterested conduct,—to him who does good by stealth, or who performs acts of exalted justice, generosity, or forbearance, under circumstances which exclude every idea of a selfish motive,—or when self-interest and personal feeling are strongly and obviously opposed to them. Such conduct commands the cordial approbation of all classes of men; and it is striking to remark how, in the highest conception of such a character that fancy can delineate, we are met by the sublime morality of the sacred writings, impressed upon us by the purest of all motives, the imitation of him who is the Giver of all good; “love your enemies,—bless them that curse you;—do good to them that hate you,—and pray for them which despitefully use you and persecute you; that ye may be the children of your Father which is in heaven; for he maketh his sun to rise on the evil and on the good, and sendeth rain on the just and on the unjust.” “If any man will be my disciple,” says the same great Author of Christianity, “let him deny himself.”

A NEW THEORY OF TERRESTRIAL MAGNETISM, read before the New York Lyceum of Natural History, by SAMUEL B. METCALFE, M. D. New York: G. & C. & H. CARVILL.—The polarity of the needle is the civilizer of mankind. Without it this western world would yet have been an unknown region; and commerce—the handmaid of religion, of science, and of all that humanizes and embellishes life—instead of covering every sea, and visiting every shore, would still be timidly creeping along the coasts which bound the great Ocean, dreaming never of launching forth into the world of trackless waters. Yet though all admit this truth, and use has reconciled us to unquestioning confidence in a guide so apparently insignificant as a thin wire of magnetized steel, no one has yet resolved the philosophy of this wonderful phenomenon. A young American physician has, in the treatise before us, attempted this solution—with what success we are unequal to pronounce; but that he has brought to the discussion much force of reasoning, many striking analogies, and fortunate illustrations, we are quite sure.

The essay is divided into two parts. In the first part some striking analogies between electricity and caloric are traced, whence it is assumed that they “are radically the same subtle, imponderable and all pervading elements;” and especially are capillary and cohesive attraction explained by reason of “an unequal distribution of caloric, and of its attraction for ponderable matter.” In the second part the connection “between caloric and terrestrial magnetism” is sought to be established; and we are sure that the process of the reasoning and the facts stated in its support will be read with general satisfaction. We cannot do better to show the spirit, as well as the talent with which Dr. Metcalfe writes, than to give an extract from the conclusion of Part I of the essay:

141. The truth is, that we live, move, and breathe constantly, in an atmosphere of unseen, but living fire. It is that which gives beauty and lustre to the blue empyrean dome—which dissolves and suspends the waters of the ocean on high—and which lets them fall in “fruitful showers to cheer the plains below.” It is the active spirit of the storm and tempest—while it clothes the fields with living green, and causes all nature to rejoice.

142. Whoever unfolds aright, the grandeur and harmony of these manifestations of Infinite Wisdom, may be said, in the language of the eloquent Galen, “to chaunt a solemn hymn of lofty adoration to the Author of the universe.”

143. Observations were made with the microscope some years ago in France, which led some philosophers to adopt the ancient doctrine, that all the elementary atoms of matter were alive—that they were composed each of separate, moving animalcules.—In short, that all nature was alive. Now there can be no doubt that the atoms of all matter are more or less in perpetual motion, caused by the transitions of caloric from one portion, to another. These chemical motions were probably mistaken for animalcular movements.

144. It is self evident that oxygen which supports combustion by giving out caloric, is also the supporter of animal life. When the oxygen of the atmosphere is inspired, it is charged with caloric positively—when expired, in combination with carbon, it is negative; having imparted a portion of its caloric to the blood. The same thing is true in every case of oxidation or combustion, respiration of plants, &c. This is a law of vast importance, and explains almost every chemical combination which takes place throughout matter.

145. How is it that carbonic acid gas, when inhaled, destroys animal life? Is it owing to the insufficient supply of caloric it affords? It cannot be by a poisonous operation, because it is formed continually in the lungs, and is therefore in perpetual contact with them. It must be owing to the fact of its having lost that portion of latent caloric, which is necessary to vital action.

146. We have endeavored to prove that caloric is the cause of capillary and cohesive attraction—that its existing in different states in different elements, is the cause of chemical attraction, and that its unequal distribution in different bodies, causes an attraction between distant as well as proximate masses.

147. To say that it is the bond of union between the heavenly bodies, might be considered too bold a stretch of generalization. It must be acknowledged, however, that the sun is one million times larger than the earth. If, then, the sun contains one million times as much caloric as the earth, he must be positive in relation to all the planets and comets—while they are negative in relation to him. Sir Isaac Newton maintained, that there must be some connecting medium between the celestial bodies by which they are retained in their orbits, which he called “ether,” and which he supposed was more subtle than light. Does not caloric answer to this subtle medium? Does it not extend from the centre, to the circumference of the universe? Is it not the cause of all the motions and transmutations of terrestrial matter?—of decomposition and recombination—of secretion, nutrition, growth, &c.? Is it not the semperviving energy of universal nature?

148. If the facts and principles which we have thus endeavored to unfold, be founded in truth, we can perceive no limits to their application. They are intimately connected with all the phenomena of living and dead matter, and therefore with every department of human knowledge. The philosophy of chemical affinity is still in its infancy, and presents a far more extensive field for discovery, than has ever yet been explored. He who enters upon it with enlarged views, and cultivates it with unwearied application, will greatly extend the boundaries of science, and will derive from his labors more imperishable renown, than that of the conqueror who wades to the diadem, through the blood and tears of suffering humanity. To control the operations of nature, and render her elements subservient to the happiness of millions, is the most noble prerogative of enlightened and philanthropic man; and raises him to communion with the ever blessed SPIRIT OF ETERNAL TRUTH, to whom be ascribed all glory and dominion, for ever.

* If we suppose caloric to be the cause of gravity, we must also suppose that it is itself without gravity—otherwise we shall only explain the phenomena of gravity by itself, which would be absurd.

AN ELEMENTARY TREATISE ON MECHANICS, translated from the French of M. BOUCHARLAT, with additions and emendations, designed to adapt it to the use of the Cadets of the United States Military Academy; by EDWARD H. COURTENAY, Professor of Natural and Experimental Philosophy in the Academy. New York: J. & J. Harper. 1 vol. pp. 432.—The title of this work is explanatory of its objects; and the name of the eminent Professor who has translated and adapted it to the use of scientific students in this country, affords an ample pledge that it is a work good in itself, and that all he has done for it has been well done. It is however a treatise only for those whose previous mathematical studies will enable them to follow out the most useful application of high mathematics. The work is very well printed by the Harpers.

MILITARY MEMOIRS of Field Marshal THE DUKE OF WELLINGTON, by Capt. MOYLE SHERER. 2 vols. Philadelphia: CAREY & LEA.—“The Conqueror of Napoleon,” as since the battle of Waterloo it has been the pride of England to designate the Duke of Wellington, has not lacked historians of his deeds of arms; though heretofore they have been celebrated in the general history of the wars in which he was engaged. The volumes before us relate more directly and solely to himself, and as personal memoirs enter of course largely into detail. The author entertains manifestly the profoundest admiration for his hero, and speaks of his military character as “unrivalled.” Success sometimes makes great men of those whom nature hardly designed for such, and always blinds the judgment to faults. The closing scene in Lord Wellington’s military career was so striking, and the results for Europe and the world of the victory of Waterloo were indeed so important, that it gave a crowning glory to the conqueror, which battles demanding and evincing much more of skill and science in the Commander have failed to impart. Without then sharing the unlimited admiration of the writer for the military career of the

Duke, we may nevertheless say that the perusal of these volumes is fitted to impress every one with the conviction that, though not "unrivalled," the military career of Wellington denotes throughout, the possession in an eminent degree of the peculiar talents of a great commander. The style of the writer is attractive; his opinions, for an Englishman, impartial; and his sources of information apparently copious and accurate.

The extract we subjoin relates to the death of Sir John Moore, at Corunna—a death which the beautiful lines of Wolfe have made known to thousands who never heard of the battle, and which is well commemorated by Capt. Sherer.

Marshal Soult had 20,000 men under arms. From the lighter guns along his front, and from a battery of heavy calibre on his left, he opened a smart cannonade, and under cover of the fire moved down in three weighty columns to the attack. The first of these, throwing out its voltigeurs, and driving in the pickets, attacked the British right, assailing the front and flank of general Baird's division. The second column marched upon the British centre. The third, with less of earnest intention in the character of its attack, moved upon the British left, where the troops were commanded by Sir John Hope.

The horse of the commander-in-chief stood saddled for him, to visit the outposts, just as the alarm was given. He rode thankful to the field. The thunder of the guns and the rolling of the musketry was already begun as he galloped to the summons with a grave joy.

The battle was most furious near the village of Elvina, on the British right. In this quarter of the field Sir David Baird was severely wounded; and here, while earnestly watching the progress of the stern combat in Elvina, Sir John Moore himself was struck upon the left breast by a cannon-shot: it threw him from his horse; but, though the laceration was dreadful, it did not deprive him of his mental energy; he sat upon the ground, and watched the battle.—His eye was steadfast and intent, and it brightened as he saw that all went bravely and well. The soldiers now put him in a blanket to carry him to the rear; as they did so, the hilt of his sword struck upon his wound, and caused him a sudden pang. Captain Hardinge would have taken off the sword, but the general stopped him, saying, "It is as well as it is: I had rather it should go out of the field with me." With these words he was borne from the battle. It was a long way to the town, and the torture of the motion was great; but the expression of his countenance was calm and resolute, and he did not sigh. Several times he made his attendants stop, and turn him round, that he might gaze upon the field of battle.

After he was laid down upon a couch in his lodgings, the pain of his wound increased. He spoke with difficulty, and at intervals. He often asked how the battle went; and being at last told that the enemy were defeated, he said instantly, "It is a great satisfaction to me to know that we have beaten the French." He was firm and composed to the last; once only, when speaking of his mother, he betrayed great emotion. "You know," said he to his old friend Colonel Anderson, "that I always wished to die this way." The bitter agony of spirit which he had long endured was thus mournfully evidenced. "I hope," he exclaimed, "the people of England will be satisfied? I hope my country will do me justice!" These precious sentences were among the last he uttered; his sufferings were not long; he expired with the hand of Colonel Anderson pressed firmly in his own.

We shall not further describe the action than by saying, that when darkness put an end to the work of battle, not only had the French been repulsed at all points, but the line of the English was considerably advanced beyond the original position. The loss of the French was, by their own admission, 3000; that of the British was about 800 killed and wounded.

The brigade of General Hill and that of General Beresford remained on shore the 17th, to cover the embarkation of the army, which began soon after the close of the engagement. By night the victorious troops filed down from the field of battle to their boats, and embarked. There was a moon, but it gave only a wan and feeble light; for the weather was misty and chill. Soon after nightfall, the remains of Sir John Moore were quietly interred in the citadel of Corunna. Soldiers dug a grave; soldiers laid him in the earth. He was buried in his military cloak, and was left asleep, and alone, upon a bastion—a bed of honor well chosen for a hero's resting-place. This last duty done, the officers of his personal staff went

on shipboard, "in soldiers' sadness, the silent mourning of men who know no tears."

Sir John Moore had signalized his name in the West Indies, in Holland, and in Egypt. His life was spent among the troops; among the troops he died; and, to this hour, it is a distinction to any officer to have learned his duty under the eye and the voice of Moore. We admire his character; we glory in his warrior-like death; we consider his fame hallowed by his end;—but we think that, with the deep knowledge of human nature he possessed, the state of Spanish society, under the actual circumstances of peril and bewilderment, ought not to have surprised him, far less to have irritated him to the extent to which it certainly did. That time was lost at Salamanca, is a matter of fact, and a subject of regret. The value of a day, or of an hour, in war, is great. It is vain to ask what might have been the consequences of a movement into the heart of Spain, which was never made, and which, according to able and acute men, never should have been contemplated; but it is certain that between that measure and a retreat of Portugal, Sir John Moore wavered long in his decisions. War, we are told, and truly, by all good officers, is a science; and we are shown how accurate and profound are, and ought to be, the calculations of a commander; yet, "nothing venture, nothing have," has passed into a proverb with mankind.

In all undertakings, we must leave something in a state too incomplete to command the certainty of success. We must exercise our trust in Providence, whatever be our aim and end: for "the lot is cast into the lap, the whole disposing thereof is of the Lord;" and undoubtedly, with a righteous cause, we may look hopefully for help. We are not of the number of those who dare to speak lightly of the spirit of Moore; for we know the help of Heaven was that to which he looked; and we believe that it was an act of conscientious self-denial, which made him hesitate to risk the lives of so many thousands on the desperate hazards of a chivalric effort.

FOREIGN INTELLIGENCE.

In France the ministers have a breathing spell, the Chambers having been prorogued on the 26th, immediately after the passing of the budget, which was done in considerable haste by the Peers. The mode of this prorogation was summary enough—no speech from the King in person, or by commission, but at a given hour M. d'Argout entered the Chamber of Deputies, accompanied by three of his colleagues, and proceeded forthwith to read a royal ordonnance, which declared the session of 1833 at an end. This laconic announcement was subsequently repeated to the Peers; and thus is the King at liberty, and, as far as the supplies can do it, enabled to carry on the Government for eighteen months to come, without assembling the legislative bodies.

Portugal.—The Steamboat City of Waterford had arrived at Falmouth, with news to the 30th June, from Lagos. Count Villa Flor and Admiral Napier were carrying all before them. They had landed at Villa Real, and were marching to the interior.

Deputations from the neighboring towns had sent in their adhesion.

"Every where the people came forward, and hailed them with enthusiasm; gifts of money, horses, and arms were made, and numbers of the people have joined the expeditionary troops as volunteers. In Villa Real, Don Pedro's troops found 30 pieces of cannon, and £5000 in the military chests, with some hundred stands of arms, plenty of ammunition, &c."

"It is calculated that he had already been joined by upwards of 2,000 men, the greater part of whom are regular troops."

"Letters have been received from Faro of the 27th ult., and from Lagos of the 29th, which state that the expedition from Oporto had met with the most favorable reception, being in both places hailed as a deliverer, and joined by the militia, and the regular troops in the vicinity, and there was no doubt that in less than a month the flag of Donna Maria would be floating over every town in the province of Algarve."

The expedition of Donna Maria's adherents to Algarve seems, according to the accounts received yesterday, to promise well—both by land and water. Captain Napier—we forget his Portuguese title—had sailed for Lisbon with all his squadron, and we have today a report by Captain Clark, of the brig Splendid, which arrived last evening from Tarragona, "that Don Pedro's squadron had captured that of Don Miguel, and had put the whole coast under

blockade." Capt. Clark passed Gibraltar on the 11th, and received this report from the brig Commerce, for Tampico, which came out of Gibraltar that morning. This report derives confirmation from the fact mentioned by a Gibraltar paper of the 8th July received in Boston, and quoted by the papers of that city, which says that a vessel arrived there on the 6th, which stated that on the morning of the 4th, about 15 miles from Cape St. Vincent, the *Miguelite* and the *Patriot squadrons* were seen sailing in two parallel lines, though wide apart, in the direction of Cape St. Mary—the former consisting of eleven and the latter of nine vessels—and that after they had been lost sight of, the report of cannon was heard.

We add some items of general news.

The Irish Reform Bill passed Parliament 274 to 94.

The West India Slavery Bill had been postponed to the 15th.

According to letters from Havre, there were at that port 30 whalers fitting out for fishing voyages. This branch of industry was scarcely known in France three or four years ago.

Gen Solignac had followed the example of Admiral Sartorius, and left the service of Donna Maria.—Marshal Bourmont, on the other hand, had arrived in London, on his way, it was said, to take command of the Miguelite forces.

The accounts from Berlin (received to the 15th instant) state that a number of foreigners had been arrested in that city, on suspicion of fomenting discontents among the people. Several Englishmen were among the number; and, notwithstanding the remonstrance of our Ambassador, Lord Minto, had been sent out of the Prussian dominions on three days' notice.

In consequence of the frequent desertion of the soldiers into France, several Prussian regiments, stationed in the Rhenish provinces, have been ordered into the interior.

It now appears that the conspiracy lately discovered in Naples was confined to the military. An officer, and six sub-officers of one of the cavalry regiment, have been arrested in that city, charged with having plotted to assassinate the King! Reports were in circulation, in Paris, that an insurrection had taken place in Turin: but private letters doubt the correctness of the rumour, admitting, however, that great excitement still prevailed in the Sardinian territories. A barrister, and six sergeants of different regiments, had been capitally convicted of high treason, by court-martial, at Turin and Alexandria: five of the latter were executed on the 15th inst.—The Bonaparte family are said to have been mixed up with the affair.

PARIS, JULY 6.—The King has returned from his short journey and has every reason to be satisfied with reception even at Dieppe, which was the favourite spot of the Duchess de Berri; during his absence the political quidnuncs has of course been torturing their brains to concoct new modifications in the cabinet, but there is no reason to suppose that any such will take place at present.

PARIS, JULY 6.—The last accounts from Naples state that the Duchess of Berry was expected at Palermo about the end of June, and that the Prince of Campo Franco, the father of the Count de Lucchesi Palli had prepared a magnificent palace for the reception of his daughter-in-law, but the Duchess could not find her husband there, as he had disappeared and his family did not know what had become of him.—[Messenger.]

LONDON, JULY 24.—Several letters from the frontiers of Poland announce that the young lady Ha-weeker, aged 18, was recently shot at Lublin by the Russians, accused of having furnished to the insurgents provisions; she proceeded quietly to the place of execution between a file of Russian soldiers.

In Spain, the ceremony of the *Jura* or swearing allegiance by the members of the Cortes to the daughter of Ferdinand as successor to his throne, was conducted with the usual solemnity and finery. No mention was made in any part of the proceedings of Don Carlos. The King of Naples, however, had, through his *Chargé d'Affaires* at Madrid, protested against this departure from the Salic law, as contrary, among other things, to his rights. The protest, which was communicated to the diplomatic corps, is published in the London papers. The poor little Princess to whom each of the Deputies in turn bent his knee, and kissed her hand, as that of his future Queen, was alarmed at the ceremony. A letter from Madrid, published in the London Times, says

—“The young Princess, not accustomed to such bustle, became frightened at the number of times that her hand was kissed, and frequently burst into tears. There was some difficulty in appeasing her, and this was always done by giving her sugar plums.”

In a Liverpool paper of a late date (Gore's Advertiser of 4th July,) we find this paragraph about new packets:

We understand that it is in contemplation to establish a new line of British-built packets between Liverpool and New York. They are to be of about 300 tons register, and constructed for fast sailing. It is not intended in the first instance to carry passengers, the American-built packets having at present a monopoly of this trade, and which they have attained by their regularity, despatch, and superior accommodation; but as it is deemed a reproach to British art and enterprise, that we do not compete with the Americans in this branch of commerce, it is determined to make the attempt in the conveyance of goods, in which respect the vessels will be admirably adapted. At present our merchants have no medium of communication with the United States, but by the American packets, to which there are many objections, and in the way of which some obstacles have been raised by the Government. These, however, will be removed by employing British-built ships.

Among the deaths recorded in late London papers, we find that of Anne, second daughter of Sir Walter Scott, who died in London on the 25th June. The immediate cause of her death was brain fever—although she is said never to have entirely rallied after her father's death.

Mr. Ellice, the Secretary of War, stated to the House, that flogging in the army within the United Kingdom would henceforth be restricted to cases of “mutiny and drunkenness on duty.” This was virtually the proposition of Mr. Hume, which the House refused, not long ago, to concur in.

The giant mortar, which made so much noise during the siege of Antwerp, burst at the camp on the heath at Braschaat on the 18th inst. Some artillery men were practising with it, preparatory to its being exhibited at a review by the King. It had been three times charged, first with 21, then with 17, and afterwards with 15 kilogrammes of powder, and it was ascertained that it carried the shell to the same distance and with the same force with the smaller as with the greater quantity. On being fired the fourth time, it was charged with only 9 kilogrammes of powder; but probably being too closely rammed, it split in two, throwing a piece of iron, weighing 3,000 kilogrammes, or nearly 6,107 English pounds, to a distance of above 20 feet. Happily no one was wounded.—[Galignani's Messenger.]

LOSS BY FORGERIES.—It is avowed by the Bank of England, in an account delivered to the Committee of Parliament, that its average annual loss by forgeries in the public funds (and not of bank notes) is forty thousand pounds, or one hundred and seventy-seven thousand, seven hundred and seventy-seven dollars! The Bank is the agent of Government, for paying the interest on the public funds, and assumes the risk of forged certificates, transfers, receipts, &c.

SUMMARY.

On Monday, the officers of the United States ship Delaware and St. Louis, and some others, of the Navy and Army, were entertained by the Common Council. They assembled at the City Hall, and were thence conveyed to the public buildings at Bellevue, after examining which, they passed over in boats to Blackwell's Island, where, having viewed the new Penitentiary, and other public works there, they dined under an arbour prepared for the occasion. These civilities between our civil and military functionaries all tend to good.

The South at least one step before their northern friends in Female Education.—At the late commencement at Mississippi College, in the town of Clinton, in the state of Mississippi, the following young ladies graduated with the usual honors: Narcissa Pleasants, Adaline Brown, Jane and Mary Mills, Margaret Teddman, Charlotte Wolcott, Maria Andrews, Frances Roberts, Virginia Flournoy, and Harriet N. Battle.

Hon. John Stanley.—In reference to the death of this individual, which took place at Newbern, N. C. on the 3d instant, the Raleigh Star says

“It will be recollected that during the session of

the Legislature of 1826-'27, while Mr. Stanley was engaged in the duties of Speaker of the House of Commons, and was in the act of delivering a speech, his course was suddenly arrested by an attack of Hemiplegia, and he was borne from the House in a perfect helpless state, having entirely lost the use of one side, and almost the power of speech. In this painful condition he remained until he was delivered by the hand of death. Thus has descended to the tomb one of North Carolina's most distinguished and useful sons. He had devoted a great portion of his life to the public service—chiefly in our State Legislature and in the Congress of the United States; in both of which offices he held a prominent rank, especially as a debater; in which capacity he had few equals—superiors none.”

The Papers of the late ROBERT C. SANDS being now arranged for the press, it is earnestly requested that all persons holding subscription papers for the proposed publication would return them to this office, or that of the Evening Post, or Commercial Advertiser, as most convenient.

Among the deaths by Cholera, at Frankfort, (Ky.) is that of Henry Madison, a free colored man, who was a pressman in the office of the Commonwealth. He had been liberated sometime ago by the Rev. R. J. Breckenridge, on condition of becoming a citizen of Liberia. He accepted these terms, with the privilege or remaining in this country until the proceeds of his labor should be sufficient to purchase his wife and child. He had in this state of things, turned his attention to the art of printing; he had acquired some knowledge of type setting, and was an admirable pressman. His object was, to establish a newspaper in Liberia, and the editor of the Commonwealth says, “he must have succeeded,” as he was a man of strong natural intellect, and of the most unexceptionable morality. With these laudable objects in view, he employed himself diligently, until his course was arrested, and himself cut off by the cholera. His death is considered a serious loss to the colony.

The Natchez Journal estimates the number of slaves in that State, (Mississippi) who have died of Cholera, at not over 1000, and in Louisiana at 10,000, or about 8 per cent. of the entire slave population. Valuing each slave at \$400, which is not an exaggerated average, this would make the pecuniary loss alone of Louisiana four millions.

The woods near Sandy Point, Westmoreland county, Va., were set on fire by lightning, last week, and much valuable timber was destroyed and other damage done before the flames could be extinguished.

No “proper place” for it.—A law of Virginia allows the retailing of spirituous liquors at “proper places,” in the different counties. In one of the counties, the magistrates have decided that there is no “proper place” within their jurisdiction for such a purpose.

Decision in the Case of the Ship Henry Ewbank.—His Honor Judge Davis gave his opinion yesterday in the District Court in the case of the claimants for salvage, on the ship Henry Ewbank and her cargo. He decided that the abandonment of the ship by her officers and crew was not premature, as alleged by the underwriters, but, in the circumstances of their situation, was justifiable. The ship as found at sea was a clear case of derelict property. The claim of George Wheelwright for himself and those who navigated the ship into Boston, as sole salvors, on the ground of a new enterprise, the Judge said could not be sustained. The natural and true place for Mr. W. was with the master and owners of brig Padang.

The nett amount of the sale of the ship and cargo, deducting expenses, would be about \$30,000. Of this sum he decreed a moiety, viz, \$15,000 to the salvors. The various claims set up he reduced to two, the claims in behalf of the British bark Hope, and the claim in behalf of the American brig Padang.

To the brig Padang, her master, officers and crew, he decreed \$9000; to Captain Brewster, \$1284; Geo. Wheelwright, mate, \$642;—\$428 each to the seamen of the brig who assisted in bringing in the Henry Ewbank, and \$214 to each of the remainder of her crew.

To the bark Hope he decreed \$600—\$510 to the master; \$255 to Metcalf, the mate; \$170 to those of the crew who assisted in navigating the ship; and \$85 to each of the nine seamen who remained on board the Hope.—[Boston Atlas.]

Bishop McIlvaine has arrived at Gambier, Ohio, with his family, and taken up his permanent residence at that place. It is understood, says the Cincinnati Advertiser, that he has succeeded in collect-

ing funds to progress extensively with the buildings deemed necessary for Kenyon College, in which the Theological Seminary has been merged almost from the time of its foundation.

OUR HARBOR.—The recent entry and departure of the United States Ship Delaware—one of the heaviest vessels afloat, probably, in any service—have naturally enough aroused attention to the comparative neglect of the harbor of New-York, as a naval station, by the General Government. At first blush, it would seem that the great commercial city of the Continent—the port which receives more vessels annually than any other three ports in the whole Union, and which, by consequence, furnishes, in like proportion, employment to more of the artisans connected in every way with shipping, and possesses more resources and facilities of every sort for equipping vessels—would of course be the port best adapted for a great naval station. In such a port, there are always thousands of experienced hands, which—habitually employed in satisfying the ever-recurring wants of an active and prosperous commercial navigation—may, at a moment's warning, be transferred, in a case of emergency, to the public service; and, the work required once done, be returned again to their accustomed labors, without any expense to the Government beyond that of the time and labor given to the particular object. This, of course, renders unnecessary those permanent engagements which, in order to secure competent services, when required, are sometimes, on stations of less resources than this, unavoidably entered into. If, for example, there be urgent occasion to finish, in the shortest possible time, a vessel upon the stocks, the Commander of the Brooklyn Yard has only to send his boat across the river, and, in a few hours he may obtain from one to five hundred ship carpenters, as the need may be. How could such a demand be met at Norfolk, or Washington, or Newport, or even Boston? This is but a single illustration of the manifold advantages which a naval station must derive from proximity to a great commercial city. Every reader, at all conversant with such matters, will readily understand how much this illustration might be extended. But, unhappily, through prejudice or inaccurate information, the bar off Sandy Hook has been thought to present an objection outweighing all the incontrovertible advantages of New-York as a naval port; and this seems to have been so systematically acted upon, that it was almost passing into an axiom, that a line of battle ship of the larger class could not safely enter our harbor. Happily, through some good influence—we willingly suppose it to have been in part, at least, that of the excellent officer, and not less excellent man, recently transferred from the command at Brooklyn to the office of Navy Commissioner—the Delaware was ordered here. She came from the pet Yard at Norfolk, whence she was forced down, though light, for miles through a bed of soft mud, took in her stores below, and arrived off here drawing near 26 feet: the wind not being fair, she was towed over the bar by steamboats, having nearly four feet water to spare in the shallowest part, extending perhaps not more than two or three times her length. She has now gone to sea, beating down the bay like a pilot-boat, passing the bar under sail, and, though the swell of a heavy south-easter had not subsided, having always more than half a fathom to spare.

With these facts before us, and conceiving that by them the only plausible reason for not making New York the great naval station of the country, is removed, it may be assumed, we trust, with some certainty, that we shall not hereafter hear any more of such a bugbear as the bar off Sandy Hook.

Munificent Gift.—James Boorman, Esq. of this city has presented to the New York Institution for the Blind, a ten years lease of the buildings and ground formerly called Abingdon Place, a short distance beyond the paved part of the city, and between the 8th and 9th Avenues. The main building on the premises is a large substantial two-story house, 100 by 54 feet, situated on a rising ground overlooking the Hudson river. There are also two stone kitchens apart from the main building, and a well of good water near the house. The ground is now in good order, under cultivation as a garden, and contains a little over two acres. The situation is stated to be one of the pleasantest on Manhattan Island, in the immediate vicinity of the city, and offers fine air, good soil for cultivation, a shady grove and flower garden, with wide and level paths. The house is very large, two stories high, with a spacious attic, abundantly large enough for a work shop and place for exercise in bad weather, while the distance from the City Hall is only about three miles.—[Gazette.]

[From the Chinese Courier.]

CHINESE MANUFACTURES IN METAL.—Among the most curious of the Chinese manufactures in metal is the far famed gong, the composition of which is said to be tin and copper in certain proportions, to which in some cases a small quantity of silver is added. The secret of annealing the alloy in such a way as to admit of its being hammered was discovered some years since in France, where gongs are now manufactured. Owing to some peculiarity in the composition, the metal in the state we see it is uncommonly short and brittle, and this property for many years defied the ingenuity of the workmen who attempted to hammer it. It was at length found that by heating the metal to a red heat, and plunging it into cold water, it was rendered malleable, and when the process of hammering was completed, it was only necessary to suffer it to cool gradually, in order to restore its brittleness. The sonorous quality of the gong is well known, and it has been introduced with success on board ships to be used in foggy weather, when a bell is scarcely audible. The Chinese prohibit the exportation, as well as that of all military implements whatever. The gong constitutes an indispensable instrument in the frightful discords of a Chinese orchestra, and is always a symbol of official rank preceding the mandarins when going from place to place with their attendants.

In boats, flat and inferior gongs are used for the purposes of saluting, and in the shops at Canton may be seen instruments of every kind, from the small disc of a few inches, used by beggars, to those of two feet in diameter.

Among the ancient Chinese, a sonorous metal of somewhat similar composition was used for making a peculiar kind of bell which was struck in religious ceremonies, and for constructing small figures of divinities, spear heads, &c. These may sometimes be met with in the shops where antiques and old China are sold, though most frequently the specimens offered for sale as such are mere modern imitations.

Many of the castings in brass and composition metal are curious, and even beautiful. The forms of the censers used for holding burning sandal wood, and odoriferous matches are sometimes exceedingly graceful and always curious. Specimens are occasionally met with which are delicately inlaid with arabesque devices in silver, others gilt and elaborately embossed, for which the most extravagant prices are demanded. To these vessels which the Chinese call *fun-heng* belong as pendants, jars of the same material similarly decorated, which contain the brazen implements used for spreading the ashes which are preserved in the censers, and into which the bamboo stems of the matches are stuck when lighted. One of these is an indispensable article in the furniture of an altar, and of the little shrines which may be seen at gates of houses and streets, in boats and in the principal apartments of all Chinese dwellings.

A composition is used for casting large medals covered with mystic characters, which are suspended from the necks of children to protect them from evil influences, in which the Chinese place implicit faith. They are usually shaped like the common coin, or cash, and are from one to three or four inches in diameter.

Brass is extensively manufactured for purposes similar to those for which it is used by Europeans. The economical propensities of the native workmen induce them, however, to put more zinc into their brass than is necessary, and the metal is thereby rendered less tenacious, and of an inferior color. The pans in which the extract of opium used for smoking is made, are large polished brass hemispheres, which are chosen in preference to iron or tin. The rolled brass and copper used here is imported from Europe, the Chinese inventions for the purpose being exceedingly imperfect.

The so-called bronze of China is little else than brass, the surface of which is colored by means of an acid. Few specimens of an alloy answering to bronze are to be found, and those chiefly of ancient date.

Immense quantities of lead are used in China for the interior casing of tea-chests. The sheet lead is very much thinner than that of Europe, and the mode in which it is made is extremely curious. The workmen have before him a flat earthen tile of about 18 inches square, neatly covered with brown paper, and another of the same kind placed above it, the papered surfaces of the tiles being in contact. When about to cast a sheet of lead, a sort of slip or check is placed between the tiles to regulate the thickness, and the workman sitting on his haunches on the upper tile, adroitly lifts the edge sufficiently to enable him to dash a quantity of the melted lead between the two; he then suffers it to descend with the weight of his body; the superfluous metal is forced out at

the sides and falls to the ground, while the sheet of thin lead remains between the tiles. These sheets are trimmed upon the edges, and soldered together by another person, to form pieces of the proper size for the chest linings.

GAMA GRASS.—The following account of this extraordinary Grass, appears in the last Fayetteville (N. C.) Observer. We do not know whether in this region the "Gama Grass" would thrive, but its yield is so prodigious that it may be worth the trial.

Sampson County, July 20, 1833.

MR. HALE: When we were together, a short time since, I promised to send you some account and description of the Gama Grass, with the result of such experiments as I made with it.

The first notice I saw of this Grass, was by Dr. Hardeman, of Missouri; whose account of its wonderful production, and valuable properties, may be found in the 8th vol. of the American Farmer, page 244. I considered the calculations he made of results, visionary, and had forgotten it.

It, however, attracted the attention of Mr. James Magoffin, of Alabama, who procured some seed, and has, now, been cultivating it several years.—The result of his experiments may be seen in the 13th vol. of the American Farmer, pages 50, 143, and 215. Also, in the 4th vol. of the Southern Agriculturalist, pages 312 and 475.

Further experiments with this grass are detailed by Mr. William Ellison, in the 4th vol. of the Southern Agriculturalist, page 404, and 5th vol. of the same work, page 5. To these several communications, I would refer such of your readers as have those works, for a better and more particular description of the grass, than I can give them.

The combined results of the experiments of these gentlemen show, that the quantity of hay which this grass yields, is far greater than any hitherto tried.—the quality of the hay is equal to any other; and that, both when green and when cured, it is greedily eaten by stock of all kinds. Mr. Magoffin informs us, he has actually made at the rate of ninety tons of green hay per acre in one year—equal to between 20 and 30 tons of cured hay. Dr. Hardeman states, that a single root, covering a circle, the diameter of which was two feet, yielded at one cutting 52 lbs. of green hay, which when dried weighed 20 lbs.; and consequently, that an acre of ground, filled with roots equally productive, would yield more than 270 tons of hay. However exorbitant these accounts may appear at first, the high standing of these gentlemen leaves no room to doubt their accuracy. My own experiments induce me to believe, that under circumstances, in all regards favorable, they may be realized.

Of the immense value of this grass to us, in a hot climate, and on sandy soil, no doubts can exist.

I have ascertained the following facts with certainty, that it grows spontaneously and luxuriantly, in our country, on alluvial bottom and rotten limestone lands. I have planted it in a poor sandy loam, on a clay foundation, (such as is the general quality of the stiff pine lands of our country) and on a sand hill, originally as barren and as arid as the deserts of Arabia. These soils, well manured, produce it abundantly. Even the long drought of 1832, (which, with me, continued from 23d May to 1st August, with the exception of one slight rain on the 9th of July) did not materially affect its growth. It may be cut as early as the 1st of May, and the cutting repeated every thirty days, until frost. It ought to be planted in drills three feet apart, and two feet space between the roots. An acre will then contain 7,350 roots. A single root of the second year's growth, (on the dry sand hill,) at three cuttings, has this year already yielded 7 1/2 lbs. of green hay, and will without doubt yield at least as much more before frost. At that rate, an acre of pure sand hill, well manured, would yield 55 tons of green hay, equal to about 18 tons of cured hay, of a quality as good as the best blade fodder.

In January last, I drilled some seed, in drills two feet apart, with seed dropped at intervals of six inches, intended for transplanting next Fall. The whole ground is now covered with a mass of grass 2 1/2 feet high. On the 10th of this month I cut and weighed the product of one drill 35 feet long. It yielded 25 lbs. of green hay, which, when cured, produced 8 lbs. of delightful forage. At this rate, an acre would yield 15,750 lbs. of green hay at one cutting. It may yet be cut three times more, and consequently, the product would be 63,000 lbs. of green hay, from seed planted in January last. The product of old roots is from two to three fold.—These seeds are planted on pine land, with a poor sandy loam on the surface, with a clay foundation—

well manured. I have not made any experiment with this grass, on any other soils than those above specified, but I know it grows much more luxuriantly on alluvial bottom, and rotten lime stone lands.

Mr. Magoffin is certainly mistaken when he supposes this grass is found indigenous only in the western prairies. He furnished me with a few seeds of his own raising. I also procured some from Mr. Ellison, of South Carolina, which grew in Fairfield District, and some from Gen. Owen, which grew spontaneously on his plantation in Bladen county in this State, on the alluvial soil of Cape Fear.

They are all planted near each other; and are, unquestionably, the same species of grass. There is not the least difference between that found in this State, and that from South Carolina. That sent me by Mr. Magoffin, from Alabama, is a little different in color, being of a pale hue, and of a little finer texture.

This grass is, without doubt, the 'Tripsacum' of botanists. In Elliott's Botany of South Carolina and Georgia, vol. 2d, page 552, two varieties are described:

"1st. Dactyloides—Root perennial—Stem 4 to 5 feet long—Leaves large, 3 feet long, 1 1/2 inches wide—Flowers, in terminal spikes—Spikes numerous—Very rare—have only seen it growing on the margin of the Ogeechee river—Flowers from May to July."

"2d. Monostachyon—Root perennial—Stem. 3 to 5 feet long—Leaves 1 to 3 feet long, 1 inch wide—Spike, solitary—Flowers in terminal spikes—Grows abundantly on the Sea Islands, (particularly on Paris Island) and along the margin of the salt water—Flowers from August to October."

For any practical purpose, there is no difference between these two varieties. They are found growing together.

The following characteristics will render this Grass obvious to common observers:

It grows in tufts or bunches, measuring about two feet across and three in height, which tufts are composed of numerous branches, springing from a common root, which is tuberous in its form for about three inches, and terminates in many small, but strong radicles. These branches, in their origin, form the common root, and have a peculiar arrangement; being produced from two opposite sides of the tuberous portion only, and departing from it at an angle in opposite directions, gives to this part of the plant a flat shape.

The leaves which (previous to the period of flowering) all issue from the root, are of a deep green color, from two to three feet long, and from one to one and a half inches wide, are shaped like a blade of fodder, but are sawed or rough on the edges, particularly towards the point. The leaves commence in a sheath, at the bottom, which encloses and covers the origin of several other interior leaves.—About the last of May, a number of flower stems shoot up from different parts of the bunch, and grow from 3 to 7 feet high, and terminate in one, two, or more finger-like appendages (called by botanists spikes.) The upper end of the spike resembles a single spike of the tassel of Indian corn, and has a blossom (farina) on it. The seeds, which vary from 3 to 6 inches on each spike, are embedded immediately below this tassel, and when flowering, each has a single tag, of a purple color, resembling the silk of Indian corn. The tassel drops as soon as it has shed its pollen, and then the seeds ripen, one by one, and drop off. The seeds are embedded on opposite sides, of the stem, and attached together, after the manner of the rattles of a rattle snake.

The flower stem is jointed and clothed with leaves, much shorter than those which proceed from the root, the sheaths of which embrace the stem, to within a short space of the next joint. It is channelled on alternate sides, like a stalk of corn. When full grown, it puts out branches at nearly every joint, which terminate and produce seeds like the main stem.

I have been thus particular in my description, to enable persons to search out this grass. I am satisfied it will be a source of much wealth and comfort in our pine country particularly. It is certainly the spontaneous product of our own State. I know it grows in New Hanover, Brunswick, and Bladen counties, and have been informed it is found in Craven and Orange, and may, probably, on any of our alluvial bottoms.

* A well known writer in the Newbern Spectator of the 19th instant, (H. C. B.) states that during the last year he found the Gama grass on the shore of the Neuse river, and that a gentleman in Florida assured him he had found it in that Territory.—[Editor of the Observer.]

Now is the time to search for it. It is in bloom, and more readily identified by the peculiarity of the seed. When not in bloom, it very much resembles some other grasses which are different in their nature, and not so valuable. I might add much more regarding it, but again refer your readers to the essays above referred to.

Very respectfully, yours,

WM. B. MEARES.

[N. B. Such Farmers as can afford to pay the cost of the American Farmer, and Southern Agriculturist, or New York Farmer, and neglect to subscribe for them, or one of them, do not deserve the benefit of any improvement or discovery in Agriculture.]

New Process of extracting Cream.—It is considered a great object by the farmers to extract from milk the greatest quantity of cream in the least possible space of time. To effect the separation of cream from serum, which chemists suppose to be combined merely in a state of mechanical mixture, it is well known, by those conversant in dairy management, that some metallic substances more readily act than others, and it is notorious that, in almost all the great dairies, the milk is suffered to stand in lead, copper, or brass vessels, in which a larger quantity of cream is thrown up, than in either wooden or earthen pans. As the dairy-man obtains additional profit, in proportion to the quantity of cream which is thrown up, so it is to his interest to keep it in these vessels as long as he can until the whole of the cream is separated, by which additional standing it often acidifies, and will consequently dissolve the metal with greater facility. With respect to the lead taken up in solution in the cream, sufficient instances of its noxious effects have been pointed out by Mr. Parkes in his chemical essays.—Mr. Booth, who has resumed the subject of inquiry, has proved that in a very great variety of cases, which have come before his notice, not only lead but even copper sometimes exists to a considerable extent in butter. May not the conflicting opinions of medical writers respecting the wholesomeness or unwholesomeness of butter have been founded upon observations of its purity, or accidental or mischievous contaminations collected from vessels used in the process of making it? It would appear that, although new to this country, the practice has for some time been adopted in America, of introducing spelter into the milk for the purpose of facilitating the separation of the cream, and with much advantage and success; but more latterly the application of zinc vessels to the purpose of extracting cream has produced results to an extent hitherto unattainable, whilst none of the serious effects before described can arise from the use of this metal. A very ingenious apparatus has been constructed for this purpose by Mr. Keyser, who has brought the manufacture of articles from malleable zinc to a high degree of perfection, one of which is deposited for exhibition at the National Gallery of Practical Science, and in which vessel, the separation of the cream is still further facilitated by the application of heat, by which means it is that the celebrated clotted Devonshire cream is procured. Into the basin containing the milk is introduced a plate of perforated zinc, the area of which is equal to the bottom of the basin: in the course of a few hours, all the cream will have been separated, and will be of that consistency, that it may be lifted off by the fingers and thumb. In these vessels, the increase of the quantity of cream is 12 1/2 per cent., and of the butter upwards of 11 per cent. The advantages are not, however, limited to this increase of quantity, as, in this process, ten or eleven minutes churning is sufficient to make butter, which, in the ordinary process, requires ninety minutes, whilst a butter similar to that prepared in Devonshire may be made simply by the brisk agitation of the cream without recourse to a churn. It may be observed that analysis proves the serum of milk, which has been submitted to this process, is more or less impregnated with the soluble salts of zinc, and which, from their emetic and astringent quality in a state of moderate concentration, might be considered noxious, if introduced into the animal economy, but is equally fitted for the support of pigs, who thrive and grow rapidly fat upon it.—[London New Monthly Mag.]

Formation of the Brain.—The brain of man excels that of any other animal in complexity of organization and fullness of development. But this is only attained by slow and gradual steps. Examined at the earliest period that it is cognizable to the senses, it appears a simple fold of nervous matter, with difficulty distinguishable into three parts, while a little tail-like prolongation towards the hinder part is the

only representation of a spinal marrow. Now in this state it perfectly resembles the brain of an adult fish, thus assuming, *in transitu*, the form that in the fish is permanent. In a short time, however, the structure is become more complex, the parts more distinct, the spinal marrow better marked; it is now the brain of a reptile. The change continues; by a singular motion certain parts (*corpora quadrigemina*) which hitherto appeared on the upper surface, now pass towards the lower; the former is their permanent situation in fishes and reptiles, the latter in birds and mammalia. This is another advance in the scale, but more remains yet to be done. The complication of the organ increases; cavities, termed *ventricles*, are formed, which do not exist in either fishes, reptiles, or birds; curiously organized parts, such as the *corpora striata*, are added,—it is now the brain of the mammalia. Its last and final change alone seems wanting, that which shall render it the brain of MAN. We thus see that man, considered merely as an animal, is, by his organization, superior to every other being;—and that, in the growth of a single individual, nature exhausts, as it were, the structure of all other animals before she arrives at this her *chef-d'œuvre*. But we have not yet done with the human brain. M. Serres has made the still more singular observation, that in the advance towards the perfect brain of the Caucasian, or highest variety of the human species, this organ not only goes through the animal transmigrations we have mentioned, but successively represents the characters with which it is found in the Negro, Malay, American, and Mongolian nations. Nay, farther, the face partakes in these alterations. One of the earliest points in which ossification commences, is in the lower jaw. This bone is, consequently, completed sooner than the other bones of the head, and acquires a predominance which, as is well known, it never loses in the Negro. During the soft pliant state of the bones of the skull, the oblong form which they naturally assume, approaches nearly the permanent shape of the American. At birth, the flattened face, and broad smooth forehead of the infant, the position of the eyes rather towards the side of the head, and the widening space between, represent the Mongolian form; while it is only as the child advances towards maturity that the oval face, the arched forehead, and the marked features of the true Caucasian become perfectly developed.—[Athenæum.]

POETRY.

NAUTILUS.

BY HARTLEY COLLIERIDGE.

Where Ausonian summers glowing,
Warm the deep to life and joyance,
And gentle zephyrs nimbly blowing;
Wanton with the waves that flowing
By many a land of ancient glory,
And many an isle renowned in story,
Leap along with gladsome buoyance,
Thou Mariner,
Do'st thou appear,
In fairy pinnace gaily flashing,
Through the white foam proudly dashing,
The joyous playmate of the buxom breeze,
The fearless foaming of the mighty seas,
Thou light sail boldly spreadest,
O'er the furrow'd waters gliding,
Thou nor wreck, nor foeman darest;
Thou nor helm nor compass needest;
While the sun is bright above thee,
While the bounding surges love thee,
In their deepening bosoms hiding,
Thou canst not fear,
Small Mariner,
For though the tides with restless motion,
Bear thee to the desert ocean,
Ear as the ocean stretches to the sky
'Tis all thine own, 'tis all thy empery.
Lame is art, and her endeavor
Follows nature's course but slowly,
Guessing, toiling, seeking ever,
Still improving, perfect never;
Little Nautilus, thou shewest
Deeper wisdom than thou knowest,
Lore, which man should study lowly.
Bold faith and cheer,
Small Mariner,
Are thine within thy pearly dwelling,
Thine, a law of life compelling,
Obedience, perfect, simple, glad and free,
To the great will that animates the sea.

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ATLANTIC JOURNAL AND FRIEND OF KNOWLEDGE.—A Quarterly Journal, by Professor Rafinesque, of Philadelphia, begun in the spring of 1833, with wood cuts, &c. dedicate 1 to Historical and Natural Sciences, Botany, Agriculture, &c. at one dollar per annum.
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TOWNSEND & DUFFEE, of Palmyra, Manufacturers of Railroad Rope, having removed their establishment to Hudson, under the name of Duffee & May, offer to supply Rope of any required length (without splice) for inclined planes of Railroads at the shortest notice, and deliver them in any of the principal cities in the United States. As to the quality of Rope, the public are referred to J. B. Jervis, Eng. M. & H. R. R. Co., Albany; or James Archibald, Engineer Hudson and Delaware Canal and Railroad Company, Carbondale, Luzerne county, Pennsylvania.
Hudson, Columbia county, New-York, {
January 29, 1833. F81 of

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Leveling Instruments, large and small sizes, with high magnifying powers with glasses made by Troughton, together with a large assortment of Engineering Instruments, manufactured and sold by E. & G. W. BLUNT, 134 Water street, corner of Maidenlane. J31 of



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EWING & HEARTY, at the sign of the Quadrant, No. 53 South street, one door north of the Union Hotel, Baltimore, beg leave to inform their friends and the public, especially Engineers, that they continue to manufacture to order and keep for sale every description of Instruments in the above branches, which they can furnish at the shortest notice, and on fair terms. Instruments repaired with care and promptitude. For proof of the high estimation on which their Surveying Instruments are held, they respectfully beg leave to tender to the public perusal, the following certificates from gentlemen of distinguished scientific attainments.

To Ewing & Hartly.—Agreeably to your request made some months since, I now offer you my opinion of the Instruments made at your establishment, for the Baltimore and Ohio Railroad Company. This opinion would have been given at a much earlier period, but was intentionally delayed, in order to afford a longer time for the trial of the Instruments, so that I could speak with the greater confidence of their merits, if such they should be found to possess.

It is with much pleasure I can now state that notwithstanding the Instruments in the service procured from our northern cities are considered good, I have a decided preference for those manufactured by you. Of the whole number manufactured for the Department of Construction, to wit: five Levels, and five of the Compasses, not one has required any repairs within the last twelve months, except from the occasional imperfection of a screw, or from accidents, to which all Instruments are liable.

They possess a firmness and stability, and at the same time a neatness and beauty of execution, which reflect much credit on the artists engaged in their construction.

I can with confidence recommend them as being worthy the notice of Companies engaged in Internal Improvements, who may require Instruments of superior workmanship.

JAMES P. STABLER,

Superintendent of Construction of the Baltimore and Ohio Railroad.

I have examined with care several Engineers' Instruments of your Manufacture, particularly Spirit Levels, and Surveyor's Compasses; and take pleasure in expressing my opinion of the excellence of the workmanship. The parts of the levels appeared well proportioned to secure facility in use, and accuracy and permanency in adjustments.

These instruments seemed to me to possess all the modern improvement of construction, of which so many have been made within these few years; and I have no doubt but they will give every satisfaction when used in the field.

WILLIAM HOWARD, U. S. Civil Eng. near.

Baltimore, May 1st, 1833.

To Messrs Ewing and Hartly.—As you have asked me to give my opinion of the merits of those instruments of your manufacture which I have either used or examined, I cheerfully state that as far as my opportunities of my becoming acquainted with their qualities have gone, I have great reason to think well of the skill displayed in their construction. The neatness of their workmanship has been the subject of frequent remark by myself, and of the accuracy of their performance I have received satisfactory assurance from others, whose opinion I respect, and who have had them for a considerable time in use. The efforts you have made since your establishment in this city, to relieve us of the necessity of sending elsewhere for what we may want in our line, deserve the unqualified approbation and our warm encouragement. Wishing you all the success which your enterprise so well merits, I remain, yours, &c.

B. H. LATROBE,

Civil Engineer in the service of the Baltimore and Ohio Railroad Company.

A number of other letters are in our possession and might be introduced, but are too lengthy. We should be happy to submit them upon application, to any persons desirous of perusing the same. m25

METEOROLOGICAL RECORD, KEPT IN THE CITY OF NEW-YORK,

From the 1st to the 12th day of August, 1893, inclusive.

(Communicated for the American Railroad Journal and Advocate of Internal Improvements.)

Date.	Hours.	Thermom.	Baromet.	Winds.	Strength of Wind.	Clouds from what direction.	Weather.
Aug. 1...	6 a. m.	63	29.97	WSW	light	NW	fair
	10	63	29.98	..	..	..	..
	2 p. m.	79	29.93	..	..	..	..
	6	78	29.90	SW	..	..	..
	10	72	29.91	..	..	..	..
" 2...	6 a. m.	67	29.95	SW-WSW	..	..	cloudy
	10	74	29.98	..	..	WNW	fair
	2 p. m.	82	29.98	SW	..	W	showery
	6	74	29.98	..	..	W by S	fair
	10	72	30.02	..	..	..	..
" 3...	6 a. m.	65	30.06	NE	..	ENE	.. and low scuds from ENE
	10	70	30.06	ENE-SSE	..	ENE-SE	..
	2 p. m.	78	30.05	SSW	..	..	clear —upper wind from SSE
	6	74	30.02	..	..	..	..
	10	70	30.03	E	..	..	..
" 4...	6 p. m.	71	30.02	SE-SSW	..	WSW	cloudy
	10	76	30.02	SSW	..	..	..
	2 p. m.	82	29.99	WSW	moderate	..	fair—cloudy at 4—rain and thunder
	6	72	30.02	WSW-WNW	..	..	rain
	10	70	30.03	NNW	light	..	cloudy —rain
" 5...	6 a. m.	68	30.04	NNE	faint	{ W by S } E-SE	cloudy—scuds from ENE
	10	76	30.05	E-SE	light	{ W by N } SE	fair —cloudy
	2 p. m.	82	30.05	SE	moderate	{ W by N } WNW	cloudy
	6	76	30.05	..	..	{ WSW }	..
	10	73	30.05	..	..	{ SW }	..
" 6...	6 a. m.	73	30.04	..	light	{ SE }	..
	10	78	30.05	SSE	moderate	{ SW }	..
	2 p. m.	73	29.99	..	gale	{ SSW }	rain—thermometer falls at 5.30
	6	68	29.95	..	gale—strong	{ WSW }	thunder and rain —cloudy
	10	67	29.98	..	moderate	{ S }	cloudy
" 7...	6 a. m.	70	29.95	SW-NW	light	{ WSW }	fair —cloudy
	10	78	29.98	NW-WSW	..	{ NW }	..
	2 p. m.	82	29.97	SW	..	WSW	..
	6	73	29.97	SSW	..	..	..
	10	75	30.00	..	..	..	clear
" 8...	6 a. m.	68	30.08	NNW	moderate	WSW	fair
	10	72	30.10	NW-N	..	..	..
	2 p. m.	76	30.08	N-NE	[light	NW	..
	6	75	30.04	FNE-E	..	..	..
	10	70	30.01	S	..	..	.. —rain in the night
" 9...	6 a. m.	70	29.88	SSW-NW	moderate	{ WSW } WNW SSW NW-W-NNE W by S NNE	cloudy—wind NW at 8—clouds WSW NW
	10	71	29.90	NW-N	fresh	{ W by S }	fair
	2 p. m.	72	29.92	NNW	..	{ NNE }	..
	6	70	29.95	N	moderate	..	..
" 10...	6 a. m.	66	30.00	..	light	..	..
	10	64	30.12	NW	..	{ W by S }	..
	2 p. m.	77	30.11	NW-SSW	..	{ NW }	..
	6	70	30.10	SSW	..	..	..
	10	66	30.11	..	..	..	..
" 11...	6 a. m.	66	30.10	SW by W	..	W by S	..
	10	72	30.11	..-SSW	moderate	{ S }	..
	2 p. m.	78	30.10	SSE	..	{ SSE }	..
	6	73	30.06	..	..	..	..
" 12...	6 a. m.	70	29.97	..	..	WSW	cloudy
	10	76	29.99	S by E	fresh	{ WSW }	..
	2 p. m.	82	29.90	..	strong	{ SSW }	fair
	6	78	29.84	..	moderate	{ S }	..
	10	75	29.80	..	..	SSW	cloudy

MARRIAGES.

On 24th ult. Dr. D. O. HARRISON, to ELIZABETH, daughter of Mr. Horace Butler.

On Thursday afternoon, August 1st, by the Rev. Dr. Dewitt, Mr. JOHN RICHARDSON, of New-Orleans, to Miss AURELIA, eldest daughter of Capt. Robert Waterman, of Brooklyn, L.I.

On Wednesday, July 31st, by the Rev. Dr. Clark, Mr. Henry Carter, of Boston, to Anne, daughter of Mr. James Bolton, of New-York.

On Thursday evening, by the Rev. Dr. Creighton, Mr. Robert Baynes, to Miss Margaret, daughter of E. Mildeberger, Esq. both of this city.

At Hempstead, L.I. Jones Pearsall, of New-York, to Miss Mary Ketchum, of Huntington South.

On Monday, at Weehawken, N. Jersey, by the Rev. Dr. Geismacher, Mr. HERMAN VON DREHLE, of Quackenbruck, Germany, to Miss LOUISA H. LOSS, daughter of the late Charles Loss, Esq.; also, Mr. HENRY WILLIAM QUITZOW, of Hamburg, Germany, to Miss EUPHEMIA AGATHA KALLENBACH, step-daughter of Mrs. Frederica Loss.

At Newark, N. J. August 6th, by the Rev. Matthew H. Henderson, Rector of Trinity Church, William S. Faltoute, Esq. to Susan Caroline, elder daughter of Sheldon Smith, Esq.

At the same time, by the same, Lieutenant Henry Eagle, of the United States Navy, to Minerva, younger daughter of Sheldon Smith, Esq.

At the Personage in Hempstead, on the evening of the 17th ult. by the Rev. B. D. Hall, Rector of St. Georges, Mr. Sylvanus

Brewer, to Miss Ann Tredwell, daughter of Benjamin Tredwell. In Sag Harbor, Mr. Aaron Oakley, to Miss Esther King.

DEATHS.

On Wednesday, MICHAEL SCHULER, aged 53.

On Tuesday, PATRICK McKENNY, aged 32 years.

On Tuesday, JOSEPH V. JENKS, in his 28th year, of Pawtucket, R. I.

On Tuesday, JOHN BURNETT, youngest son of Captain Benjamin Burnett, aged near 2 years.

On Monday, Mrs. PRUDENCE, widow of the late Daniel N. Tucker, aged 40 years.

On Wednesday, JAMES WILSON, in his 40th year.

Last evening at the residence of her Grandfather, in Shrewsbury, N. J., where she had gone for the restoration of her health, ANN ELIZA WHITLOCK, daughter of the late Thaddeus Whitlock, of New-York, aged 22 years, 8 months and 8 days.

Last evening, of apoplexy, Mrs. ELIZABETH ROBINSON, widow of the late Capt. Joseph Robinson, in her 51st year.

Last evening, at Newtown, (near Halletts Cove) L. I., Mrs. Maria, wife of Thomas R. Lawrence.

On Tuesday evening, of hydrocephalus, JOHN JACOB LANSING, infant son of Cornelius Dickinson, M. D., aged 7 months.

In Hudson, WM. F. HARDICK, aged 76.

In Virginia, CHARLOTTE, daughter of Hugh Nelson, aged 22.

At Williamsport, Pa., WM. BOYD SMITH, Esq.

In Albany, Mrs. CATHERINE VROMAN.

At Fayetteville, N.C. Duncan Thompson, Esq.

At Philadelphia, on 28th ult. William Hitchcock, youngest son of Lieut. John G. Reynolds, of the U. S. Marine Corps.

At Fredericksburg, Va. on Saturday morning last, in the 61st year of his age, Captain Robert Parrott, long a highly respected citizen of that place.

At Belgrade, Washington County, N. C., on the 4th instant, Mrs. MARY PETTEGREW, aged 84 years, 7 months and 20 days. This venerable and estimable lady was the consort of the Rev. Charles Pettegrew, first Bishop elect of the Protestant Episcopal Church of North Carolina.

Obituary.—It becomes our painful task to record the death of another of our most eminent physicians. Dr. JAMES M. STAUGHTON died yesterday about 5 o'clock, after a lingering illness of three weeks. He came among us but a few years since an entire stranger. His high professional character soon pointed him out as a proper person to discharge the responsible duties of a professor in our medical college, and it is but justice to say that he filled his station with great credit to himself and much honor to the institution. He has been cut off in the prime of life and in the midst of his usefulness. In his death society has sustained a heavy loss, and the poor have in particular been deprived of a most active and efficient friend, who was ever ready to administer to their necessities. Throughout his protracted illness and suffering, he was sustained by that hope which alone can rob death of its sting and the grave of its victory.—[Cincinnati Gazette, Aug. 8.]

STEPHENSON,

Builder of a superior style of Passenger Cars for Railroads, No. 264 Elizabeth street, near Bleecker street, New-York.

RAILROAD COMPANIES would do well to examine these Cars; a specimen of which may be seen on that part of the New-York and Harlem Railroad, now in operation.

Also, CAR SPRINGS.

RAILROAD CAR WHEELS AND BOXES, AND OTHER RAILROAD CASTINGS. Also: AXLES furnished and fitted to wheels complete, at the Jefferson Cotton and Wool Machine Factory and Foundry, Paterson, N. J. All orders addressed to the subscribers at Paterson, or 60 Wall street, New York, will be promptly attended to.

ROGERS, KETCHUM & GROSVENOR.

RAILWAY IRON.

Ninety-five tons of 1 inch by 1 inch, Flat Bars in lengths of 14 to 15 feet counter sunk holes, ends cut at an angle of 45 degrees with splicing plates, nails to suit.

250 do. of Edge Rails of 36 lbs. per yard, with the requisite chairs, keys and pins.

The above will be sold free of duty, to State Governments, and Incorporated Governments, and the Drawback taken in part payment.

Models and samples of all the different kinds of Rails, Chairs, Pins, Wedges, Spikes, and Splicing Plates, in use, both in this country and Great Britain, will be exhibited to those disposed to examine them.

ENGINEERING AND SURVEYING INSTRUMENTS.

The subscriber manufactures all kinds of Instruments in his profession, warranted equal, if not superior, in principles of construction and workmanship to any imported or manufactured in the United States; several of which are entirely new: among which are an Improved Compass, with a Telescope attached, by which angles can be taken with or without the use of the needle, with perfect accuracy—also, a Railroad Goniometer, with two Telescopes—and a Levelling Instrument, with a Goniometer attached, particularly adapted to Railroad purposes.

WM. J. YOUNG, Mathematical Instrument Maker, No. 9 Dock street, Philadelphia.

The following recommendations are respectfully submitted to Engineers, Surveyors, and others interested.

Baltimore, 1832.

In reply to thy inquiries respecting the instruments manufactured by thee, now in use on the Baltimore and Ohio Railroad. I cheerfully furnish thee with the following information. The whole number of Levels now in possession of the department of construction of thy make is seven. The whole number of the "Improved Compass" is eight. These are all exclusive of the number in the service of the Engineer and Graduation Department.

Both Levels and Compasses are in good repair. They have in fact needed but little repairs, except from accidents to which all instruments of the kind are liable.

I have found that thy patterns for the levels and compasses have been preferred by my assistants generally, to any others in use, and the Improved Compass is superior to any other description of Goniometer that we have yet tried in laying the rails on this Road.

This instrument, more recently improved with a reversing telescope, in place of the vane sight, leaves the engineer scarcely anything to desire in the formation or convenience of the Compass. It is indeed the most completely adapted to later angles of any simple and cheap instrument that I have yet seen, and I cannot but believe it will be preferred to all others now in use for laying of rails—and in fact, when known, I think it will be as highly appreciated for common surveying.

Respectfully thy friend, JAMES F. STABLER, Superintendent of Construction of Baltimore and Ohio Railroad.

Philadelphia, February, 1833. Having for the last two years made constant use of Mr. Young's "Parent Improved Compass," I can safely say I believe it to be much superior to any other instrument of the kind now in use, and as such most cheerfully recommend it to Engineers and Surveyors.

E. H. GILL, Civil Engineer. Germantown, February, 1833. For a year past I have used instruments made by Mr. W. J. Young, of Philadelphia, in which he has combined the properties of a Theodolite with the common Level.

I consider these instruments admirably calculated for laying out Railroads, and can recommend them to the notice of Engineers as preferable to any others for that purpose.

HENRY R. CAMPBELL, Eng. Philad., Germant. and Norrist. Railroad